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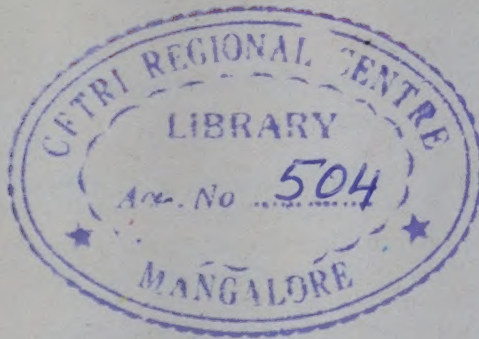
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MANORAMA YEARBOOK 1996



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Preface

Investment has become a top-of-the-mind topic in India which the rest of the world looks upon as an emerging economic tiger. In the new economic era that began in 1991, investment has assumed exciting dimensions and there are brave new avenues for business enterprise. No surprise, then, that investors the world over are keenly watching India in this election year.

Appropriately, 'Investment in India Since Liberalisation' is the Cover Story of the 31st edition of Manorama Yearbook. It is a comprehensive study of the sea-change in the investment climate in India since 1991, with emphasis on savings patterns, investment by domestic as well as overseas investors, the performance of equity and debt markets, and Indian investment abroad.

Like the Cover Story, all other sections of the Yearbook go to the heart of the matter. We have updated every section, introduced fresh listings in the section on India and the States, and strengthened the regular features.

The Science and Technology section opens with an article on the environmental impact of economic globalisation. The Current Affairs section carries a bonus: a close look at China in the last 15 years with an analysis of Sino-Indian relations in the global context. Sports lovers, too, would find the Yearbook filling: there are two special articles on the Atlanta Olympic Games and the World Cup Cricket.

Science Scan of the latest developments in science and technology and advances in medicine surveys a wider spectrum this time. Who's Who, too, has been expanded to include more personalities, Indian as well as foreign. The General Information section is a new addition in response to requests from many users of the Yearbook. We hope that it will be of interest to all our readers.

Manorama Yearbook, now entering the fourth decade of its service, is intended primarily for young men and women on the threshold of making career options. All the same, it has become a reference book for teachers, researchers and the general public.

The Yearbook has had the honour of appearing on the best-seller list for two consecutive years. Today it is the largest selling publication of its kind in India.

It is gratifying to see more and more people turning to Manorama Yearbook for information on a wide variety of subjects. This strengthens our commitment to our readers: a better, and more informative, product every year.

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CONTENTS

Cover story.....	11
Investment in India since liberalisation	
Science Scan.....	37
Awards, Honours.....	72
Obituary, 1995.....	74
General Information.....	79
Stop Press.....	96

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CONTENTS

Part I	
Science & Technology	
Environmental Impact of Economic Globalisation.....	98
Universe: As we know.....	104
Universe.....	106
Solar System.....	112
Space Exploration.....	116
Earth.....	120
Atmosphere.....	129
World of Plants.....	132
World of Animals.....	134
Evolution of Man.....	135
Genetics.....	137

Electronic Engineering.....	139
Food and Nutrition.....	142
Inventions.....	146
Instruments.....	151
Information Technology.....	153
Superconductivity.....	156
Biogenetics.....	158
Optics.....	159
World of Sound.....	161
Measurement Standards.....	163
Minerals.....	164
International Units.....	165
World of Medicine.....	170
Computers.....	171
Communications.....	182



Theme Parks come to India: Kishkinta, Madras

Lasers.....	184
Science Glossary.....	185

Part II

World Panorama

Nations of the World.....	194
Maps.....	225
Nations of the World (continued).....	241
Great Civilizations.....	293
Outline of History.....	294
Post-Second World War.....	300
The Eighties.....	302
Glasnost and all that.....	305
Changes in East Europe.....	306
Reunification of Germany.....	307
Break up of Soviet Union.....	308
UN Peace Efforts.....	310
Palestine baptised.....	312
1994 in a nutshell.....	315
World Economy.....	318
World Population Trends.....	320
World Languages.....	322
World Religions.....	326
UN: Golden Jubilee.....	328
World Organisations.....	332

Part III

General Knowledge

Current Affairs.....	338
Awards and Honours.....	369



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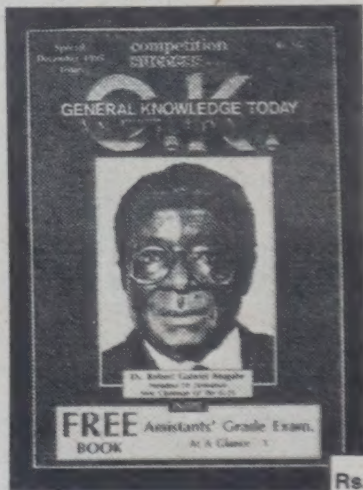
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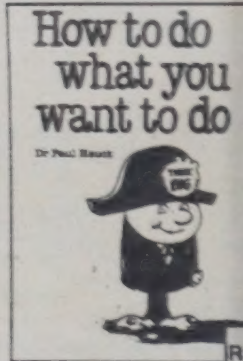
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CONTENTS

Records.....	382
The Records.....	386
Own Books.....	389
ations.....	395
Who.....	401
es '95.....	433

IV a and the States

Country.....	451
National insignia.....	453
People.....	454
Population.....	456
us Communities.....	461
al Languages.....	464
Literature.....	467
Painting, Sculpture.....	486
Theatre.....	498
arks of History.....	500
ational Movement.....	503
National Congress.....	504
ssion and reforms.....	507
and conferences.....	508
rtition.....	510
of the Nation.....	511
om and after.....	514
rbulent eighties.....	516
sition gains power.....	520
ye of guard in Delhi.....	521
Gandhi assassinated.....	524



am Malleswari: World's best. Record-
ing performance at the World Weight-
g Championships



The village that love built: Banegaon, reconstructed
by Malayala Manorama and its readers.

Demolition in Ayodhya.....	526
Border accord with China.....	530
1994 at a glance.....	535
The Constitution.....	539
The Economic Scene.....	548
Plans at a glance.....	558
Business and capital market.....	561
The banking sector.....	566
Tourism.....	571
Consumer Movement.....	573
Defence.....	576
Space Research.....	581
Education.....	585
Environment.....	589
Telecommunications.....	591
Transportation.....	593
Plantations.....	597
Labour.....	602
Housing.....	603
Mass Communication.....	604
Postal Services.....	604
The Media.....	605
Cinema.....	607
States and Territories.....	612
The Government.....	685

Part V

The World of Sports

Olympic information pack.....	706
Greatest Prize in Cricket.....	717
Walking Billboards.....	727
Sports Panorama.....	733
Asian Games, Hiroshima.....	755
Looking Back On 1995.....	769
Index.....	

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over Story

Investment in India since Liberalisation

It could be argued that the most impressive success of the new Indian economic policies since 1991 lies in the transformation of the investment climate in India. This is perceived to be so both by domestic and foreign investors. The evidence lies in the growth of foreign exchange reserves (as on 31st March 1995) to US\$ 20.8 billion (excluding gold); and to US\$ 19.6 billion in end-June 1995; dramatic rise in capital issues in 1994-95 to Rs. 106.45 billion and Rs. 68.39 billion in April to July 1995 (Source: RBI); rise in market capitalisation of Indian companies registered in the stock exchanges to almost Rs. 4331 billion (in March 1995); foreign direct investment inflows of over Rs. 1 billion (between 1991 and 1994); foreign portfolio investment inflows of US\$ 5.3 billion in just two years (1992 to 1994); and remarkable steadiness in the external value of the Indian Rupee, with the blackmarket rate being very close above the rate determined by the legal market.

This paper will look at the changes in (a) the way in which savings have behaved, (b) investments in India by domestic and overseas investors, (c) the factors influencing investment flows, (d) the performance of

equity and debt markets, (e) external flows from India, and (f) the policy changes that have come about and which are further required.

Savings

Gross domestic savings in India rose steadily from 12.7 per cent in 1960-61 to a high of 23.7 per cent in 1990-91. Since then it has declined every year and reached a level of 20.0 per cent in 1992-93. These are estimates of the Central Statistical Organization (CSO) of the Government of India. The Reserve Bank of India figures are not the same, due to differences in compilation method.

Gross Domestic Savings

To GDP at current prices (%)

	RBI	CSO
1980-81	21.2	21.2
1989-90	23.1	22.3
1990-91	23.9	23.7
1991-92	24.2	23.1
1992-93	22.5	20.0
1993-94	24.2	20.2

(Source: RBI)

(Source: NAS 1995, CSO)

A committee appointed by the Government of India is examining the methods used for estimating savings in India. Savings of the public sector (government), and of the private corporate sector are calculated from the source data of government incomes and expenditures and private corporate performance. However the biggest component of savings in India is by the household sector which has savings in financial assets and in physical assets. This is not based on a periodic and comprehensive sample survey of households but is arrived at as a residual from the national income accounts. It is essential that a more generally acceptable and reliable method to estimate savings should be adopted.

The continuous decline in savings (according to CSO figures) after 1990-91 could be attributed to inflation. The wholesale price index for all commodities rose (percentages over previous year), as follows:

1989-90	90-91	91-92	92-93	93-94	94-95
7.5%	10.3%	13.7%	10.1%	8.4%	10.9%

(Source: Ministry of Industry)

The last time when CSO figures showed a continuous annual decline in savings rate was from 1980-81.

	Gross Domestic Savings as % of GDP	Inflation (% rise in WPI over the previous year)
1980-81	21.2	18.2
1981-82	19.8	9.3
1982-83	19.0	4.9
1983-84	18.9	7.5
1984-85	18.2	6.5
1985-86	19.8	4.4

(Source: NAS, CSO)

(Source: Ministry of Industry)

The decline in savings rate at that time was not accompanied by inflation and the decline was primarily in household savings.

Percentages to GDP at Current Prices

	Household Total	Sector Financial assets	Public Physical assets	Private Corporate Sector	
80-81	16.1	6.3	9.7	3.4	1.7
89-90	18.8	8.2	10.7	1.6	2.6
90-91	20.2	8.7	11.5	1.0	2.7
91-92	19.5	10.1	9.4	1.7	3.0
92-93	17.1	7.8	9.3	2.1	3.1
93-94	19.6	10.1	9.5	1.3	3.3

Household savings declined in 1991-92

and 1992-93 primarily in physical assets. The decline in public sector savings in 90 and 1990-91, reflects the rise in years in the government's overall fiscal deficit. The subsequent improvement in sector savings reflects the improvement in government's management of its deficit. Public sector savings fell in 1993-94 when the deficit had risen to 7.7 per cent of GDP.

Fiscal deficit as % to GDP

1989-90
1990-91
1991-92
1992-93
1993-94
1994-95 (RE)
1995-96 (BE)

(Budget papers 1994-95)

Aggregate Investment

Percentage to GDP at Current Prices

	Gross Domestic savings	Net inflow of foreign resources	Aggregate investment
	1	2	
1980-81	21.2	1.7	
1989-90	23.1	2.8	
1990-91	23.9	3.4	
1991-92	24.2	0.6	
1992-93	22.5	2.0	
1993-94	24.2	0.3	

(RBI Papers)

Aggregate investment rose upto 1991-92 because of the high and rising inflows of foreign resources. When these fell sharply in subsequent years, there was a considerable fall in the level of aggregate investment. Despite considerable private foreign inflows for investment since 1991, the level of savings did not pick up because of the virtual disappearance of the deficit in the current account, leading to a fall in the deficit in the balance of payments. This affected the inflow of foreign resources as is reflected in the deficit in the balance of payments, which began to improve with the savage restrictions on imports in 1991-92. In subsequent years the restrictions on imports were relaxed and imports were made much easier. The significant improvement in exports, (up from 6.1% of GDP in 1990-91 to 8.8% of GDP in 1993-94), helped to keep the current account deficit as a proportion to GDP at much lower levels than they had been in 1991-92.

Capital Formation

proportion to GDP, gross capital formation in India has been higher in the private than in the public sector.

	As % of GDP at market prices		Total unadjusted	% share in total capital formation	
	Public sector	Private sector		Public sector	Private sector
81	7.0	8.9	15.9	44.2	55.8
71	6.5	10.6	17.1	38.1	61.9
61	8.7	12.3	20.9	41.4	58.6
56	11.2	13.0	24.2	46.4	53.6
50	10.0	14.3	24.3	41.1	58.9
41	9.7	15.9	25.7	38.0	62.0
32	9.2	13.7	22.9	40.1	59.9
23	8.9	14.4	23.3	38.1	61.9
14	8.9	12.4	21.3	41.7	58.3

CMIE

There has been a decline in investment in the economy from 1991-92. The improvement in 1993 over 1991-92 was marginal. This is due to persistent decline in the public sector, and changes from year to year in the private sector.

According to the World Bank's country study for India (1995), "declining investment and growth has been a frequent response to stabilization and reform".

India's private investment has for most of the years since Independence, been concentrated in housing, agriculture, and manufacturing. Improvement in capital formation and investment has to come from these three sectors. Public sector investments do not show increase. Investments in housing may not rise fast enough to lead this recovery because of very tight housing finance; and obstacles created by the Urban Land Ceiling Regulation Act of 1976 which make any sale of urban land subject to government approval.

The World Bank says that in both public and private sector, investments in agriculture have been declining for some years in real terms since 1980-81. The reasons are many and the World Bank Report (op.cit.), summarizes them as: policy framework which fragments India's domestic agricultural markets and restricts private investment in wholesale trade, storage and agro processing.

Declines in public investment in agriculture, which has a proven strong inductive effect on private investment in this sector; crude policy instruments such as external trade restrictions and domestic price interventions; large implicit and explicit subsidies for fertil-

izer, power consumed by farmers, and irrigation, have partially offset the effect of this taxation at an exceedingly high fiscal cost. This has crowded out, however, more productive form of public spending on agriculture."

Gross capital formation in agriculture

at 1980-81 prices (Rs. crores)

1987-88	44.14
1988-89	43.47
1989-90	43.53
1990-91	45.93
1991-92	44.97
1992-93	46.17
1993-94	46.95

(Economic Survey 1994-95)

"The decline in *real* capital formation in agriculture by the public sector is more perceptible, as it has come down to Rs. 10.65 billion in 1992-93 compared to Rs. 17.96 billion in 1980-81. Private sector real investment in agriculture has increased in absolute terms from Rs. 28.40 billion in 1980-81 to Rs. 35.52 billion in 1992-93, though its share in total gross capital formation has declined significantly during the period." (op.cit.)

There is a need to strengthen the incentives to attract more private investment into agriculture. This would also depend on the pace of development of agricultural processing and export of value-added non-traditional agricultural products.

This analysis leads to the conclusion that manufacturing must take the lead in accelerating private investment. Past government policies have resulted in considerable excess capacity in Indian manufacturing, which could give significant increases in production without additions to capacity.

Trends in Capacity Utilization

	1970-80	1980-90	1970-90
Basic goods	57.8	69.2	63.2
Intermediates	94.1	87.1	90.7
Capital goods	65.2	66.9	66.0
Consumer goods	74.3	76.1	75.1
Durables	84.6	78.9	81.9
Non-durables	76.8	75.6	76.2

World Bank, India Report, 1993

However in 1995, NCAER's quarterly surveys of business expectations have shown that capacity utilization has risen greatly, and capacity shortages can be expected, unless there are substantial additions to capacity.

At the same time, there is also need for large additional investments because of past government policies which:

- i. led to proliferation of plants with sub-critical production capacities;
- ii. made companies show idle capacity as a barrier to new entrants who would then be denied industrial licenses by government;
- iii. led to considerable unrelated diversification and lack of specialization by companies which found it easier to get industrial licences for new products than for expansion for existing product lines, leading to yet another reason for low productivity and high cost of production.

In order to be competitive, investments are required to expand capacity to more economic levels, improve productivity and quality.

Capital Formation in Corporate Manufacturing Sector

Private sector has shown a significant improvement in gross capital formation after 1988.

	Gross fixed capital formation	Total gross capital formation (Rs. billion)
1980-81	35.41	34.48
1985-86	100.43	144.05
1989-90	152.10	196.45
1990-91	202.91	247.03
1991-92	343.51	365.40
1992-93	421.08	474.09
1993-94	564.72	534.64

(Source: CMIE)

Investments in central government-owned public enterprises have not shown similar steady improvement.

	1990-91		1991-92		1992-93		1993-94	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
Internal resources	131.00	107.00	137.00	120.00	151.00	161.00	191.00	189.00
Bonds & debentures	39.00	49.00	59.00	57.00	61.00	63.00	69.00	62.00
External Commercial (incl. supplies credits)	15.00	26.00	20.00	19.00	59.00	37.00	52.00	41.00
Public deposits and inter-companies borrowing	34.00	23.00	24.00	29.00	28.00	39.00	96.00	72.00
Budget Support	68.00	76.00	68.00	69.00	69.00	66.00	66.00	75.00
Total	287.00	281.00	308.00	294.00	368.00	366.00	474.00	439.00

[World Bank — India, op.cit.]

Budget

(Rs.)

1990-91	287.00
1991-92	308.00
1992-93	368.000
1993-94	474.00
1994-95	501.00

(Budget)

(World Bank, op.cit.)

Fixed capital formation grew by 55 per cent in the private corporate sector between 1990-91 and 1999-93. Investment in the central public enterprises grew by 30 per cent, and though in each year were behind budget, due to shortfalls in borrowings, especially on external and special borrowings.

Public Enterprises

The Plan investments in central public enterprises since 1990 have been primarily internally generated resources, i.e. profits and depreciation. The next important source has been budget support from government. External borrowings were also important. Till 1991, in each year except one, a shortfall in investment was against the Plan.

Central public enterprises appear to have found it difficult to borrow in the market even as they accumulated debt. However they are able to raise interest-free loans from the public and fixed deposits from the public. The public perhaps regard as being in short of funds, backed by government, and hence to be bailed out.

Since 1991, Government of India has continuously tried to sell portions of its equity in central public enterprises, and between 1991 and 1993 about Rs. 50 billion worth of equity has been sold in 35 PSE's. These sales have reduced government equity in these enterprises by a low of 1.12 per cent in Hindustan Cycles and a high of 45 per cent in Cochin Refineries (in which there was already private equity).

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44 per cent in Hindustan Organic Chemicals Ltd. (Economic survey, 1994-95). Others had government equity reduced in varying proportions in between. These disinvestments were completed in several rounds of offerings. The disinvestments started with a "bundle" of shares including good performing as well as bad performing companies, at an averaged price because government had no idea as to the value of the shares. The initial sales were to government owned financial institutions. In subsequent disinvestments, the shares were auctioned to the highest bidder in individual lots. The minimum value of the lot was reduced in 1994 to Rs.

25,000 in order to enable relatively investors also to participate.

State governments have begun to sell over some of their public enterprises to parties. Details of the number and the sales are not available.

Capital Issues to Public

Industry has raised around half of the for capital formation from its own saving depreciation. The balance has been raised three sources:

- equity share issues in India

Distribution of Capital Issues

(Rs. bi

		1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
Equity Issues	Total	10.60	18.08	15.23	23.95	165.61	168.71	
of which								
Private Sector Companies		9.56	11.78	13.51	17.95	97.91	103.45	
Mutual funds & FI's		1.04	6.30	1.72	6.00	64.33	62.83	
Public Sector Companies		0	0	0	0	3.37	2.43	
Debentures								
Non-convertible		26.49	51.26	57.14	73.96	36.18	72.34	
Total of which Private								
Sector companies		2.65	3.30	6.35	10.11	23.68	17.49	
Mutual Funds & FI's		3.26	4.42	6.19	6.63	4.00	24.25	
Public Sector companies		20.58	44.44	44.60	57.22	8.50	30.60	
Convertible		17.56	52.63	24.46	36.59	80.16	82.17	
Total Capital Issues		54.65	121.97	96.83	134.50	281.95	323.22	400.00

(Figures for 1988-89 to 1993-94 from CMIE)

The monthly trends show some slackening after February 1995.

Capital Issues

	Number of Issues			Amount (Rs. billion)	
	Public	Rights	Total	Public	Rights
1994					
August	98	27	125	14.12	13.06
September	118	27	145	19.93	7.69
October	79	35	114	15.63	22.85
November	80	26	106	8.09	11.82
December	111	24	135	15.80	43.91
1995					
January	149	33	182	28.67	11.88
February	199	38	237	72.84	16.50
March	170	38	208	18.40	16.80
April	137	25	162	15.50	5.98
May	118	21	139	9.29	1.57
June	68	11	79	5.09	2.66
July	61	8	69	27.08	1.23
1994-95	1349	360	1709	230.69	175.76
April '95 to July '95	384	65	449	56.96	11.44

Source CMIE, p. 39, July 1995



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- borrowings from financial institutions and the public in India
- equity and/or borrowing in overseas markets.

The scenario depicted in the data on capital issues shows the dramatic change that has taken place in India's investment climate in the years after 1991.

1. Equity: The Indian investor has shifted in a big way to equity issues. In 1993-94 the total capital issues were not much different from 1992-93. That was perhaps because of the various problems in the stock market including the 'scam'. These included the very high premia charged by some companies after the abolition of issue price clearance by the Controller of Capital Issues accompanied in many cases by suspicious price rises before the issues, allegedly due to price rigging by promoters. In many cases the market price fell below the premium levels after the issue, and this adversely affected overall investor confidence. The markets in 1994-95 were affected by the abolition of 'badla' in December 1994 when SEBI asked all stock exchanges to enforce conclusion of all transactions in securities by delivery and payment, and not to allow any carry forward of transactions. This also affected liquidity in markets. The decline in portfolio investments by foreign financial institutions due to fears about the volatility of portfolios in emerging markets, also affected liquidity. Towards the end of 1993-94, companies which had invested surplus funds in the stock market, began to withdraw them in order to proceed with their capital investments. All this affected the flow of funds into secondary markets, and so into primary markets. The year 1994-95 showed an improvement in primary issues.

The new issues market was flooded during January and February 1995.

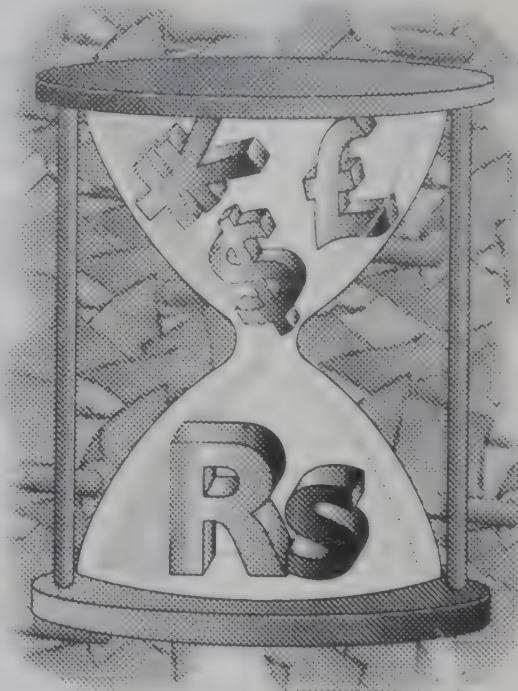
	Feb. 1995	Jan. 1995
Amount Rs. billion	56.20	21.52
Total Number of Issues	198	145
Equity Issues	193	142

Source: CMIE

In March 1995, it was expected, around 150 issues would open for subscription. It appears (according to Prime Data Base) that the proportion of public issues open to the public for subscription, has been dropping.

1993-94 — 57% of issue price was called
 1994-95 — 49% of issue price was called
 1995-96 — 43 to 59% issue price was called

(April-June)



2. Mutual Funds:

It was the private sector that took maximum benefit of equity issues. The mutual funds also primarily invested in private sector issues. Mutual Funds saw a decline in subscriptions in 1993-94 though it picked up in 1994-95. This was due to relative lack of liquidity and to market prices being low, and at a discount over their net asset values (navs). Many mutual funds in fact are quoted at below par value (e.g., Taurus, Morgan Stanley and many domestic funds). Resources mobilised by Mutual Funds (including UTI) under various schemes rose substantially from Rs. 20.18 billion in 1987-88 to Rs. 130.18 billion in

1992-93, and Rs. 114.06 billion in 1993-94 (provisional). In April-September 1995 the amount is provisionally placed at Rs. 77.50 billion (RBI).

3. Debt Instruments: While there was a small amount of equity subscription to public sector shares in 1992-94, it was of minor significance compared to the amounts raised by the private sector. Public sector raised maximum resources through secured debt in the market, as non-convertible debentures. These are high cost instruments and will further erode the profitability of public sector enterprises who accounted till 1991-92 for the maximum proportion of these instruments. In subsequent years the private sector were major users of this instrument. The mutual funds consistently raised money in this way. It is clear that the private sector was continuously changing its capital structure to more equity and debt, and that this process really accelerated from 1992-93. The public sector continued to go for more

debt. This is a reflection of the central government's inability to reduce its equity stake in public sector enterprises by allowing them to raise equity capital from the market. The large sums raised through convertible debentures were also by the private sector, for whom this was a way to attract investors to subscribe to equity on conversion of the debentures, after enjoying the position of secured creditors, and for a while earning interest, though somewhat lower than available on non-convertible debentures.

Indian companies were allowed access to international capital markets from 1992. The two instruments used were equity and debt, designed as GDR's and FCCB's, the latter also including Euro Convertible Bonds.

Global Depository Receipts (GDR) are equity instruments created by a so-called Overseas Depository Bank (ODB) authorized by the issuing company to issue outside India GDRs to non-resident investors against the shares delivered to a Domestic Custodian Bank who instructs the ODB to issue GDRs against the shares it holds. A company willing to raise foreign fund through GDRs is required to obtain prior permission from the Department of Economic Affairs at the Ministry of Finance. The shares correspond to the GDRs in a fixed ratio (for example 1 GDR can represent 5 shares). The GDRs may be issues in a negotiable form, and are typically listed in a country that does not tax capital gains and can be traded on international computerized networks. GDRs can be redeemed at the price of the corresponding ordinary shares of the issuing company at the date of redemption. The Indian authorities treat GDRs as direct investment in the issuing company and are subject to the ceiling on foreign equity participation. (World Bank, India 1995).

Euro-convertible Bonds (ECB) are bonds subscribed by a non-resident in foreign currency

and convertible into ordinary shares of the issuing company. The same authorization procedure that applies to GDRs holds for ECBs and are treated as direct investment in the issuing company. (World Bank - India, 1995).

In October 1994, government stipulated that Euro Issue proceeds should be mandatorily retained abroad, to be repatriated as and when expenditure for the approved end uses were incurred. The reason was to curb the inflationary potential of a massive accumulation of foreign exchange reserves, which was inevitable because of the long gestation period of new investment, during which period the funds would not be spent.

5. Use of Funds from Capital Issues:

Capital goods in India's industrial production showed a decline from 1991-92 to 1993-94. They began to show high growth - indeed the highest growth in comparison with other sectors in the economy, from July 1994 and this high growth has continued (cumulative growth of 24% over previous year in 1994-95). Similarly it was only from January 1995 that capital goods imports showed significant growth (in 1994-95, 42.1% over previous year). It would not be wrong to conclude that Indian companies began to use the substantial sums they had raised in the capital markets for investment, only from around mid 1994. It can be conjectured that a great part of the amounts raised in India and overseas till then, were used to reduce high cost domestic borrowings from banks and financial institutions, and substantial amounts went for investment in the stock market. When it began to be withdrawn for capital investments in the second half of 1994, there started a major liquidity crisis in the stock markets, which continues. Meanwhile, there has been considerable expansion in sales and production, and bank credit is again in demand, and perceived to be tight.

4. Overseas Capital Issues:

Euro Issues and Amount of Inflow

(US \$ billion)

	Issues launched (capital raised)		Total	Amount of inflow		
	Global depository receipts (GDR)	Foreign currency convertible bonds (FCCB)		GDRs	FCBs	Total
1992-93	0.24		0.24	0.09		0.09
1993-94	1.52	1.00	2.52	1.40	0.91	2.31
1994-95*	1.85	0.10	1.96	1.74	0.09	1.83
Total	1.85	1.10	4.71	3.29	1.01	4.30

* Up to January 1995 (Economic Survey 1994-95)

6. Capital Markets Reforms: 1992-93 to 1994-95:

-Capital Issues (Control) Act, 1947 repealed and the office of Controller of Capital issues abolished; control over price and premium of shares removed. Companies are now free to approach capital market after clearance by SEBI.

-Securities and Exchange Board of India armed with necessary authority and powers for regulation and reform of capital market.

-Through a notification issued under the Securities Contract (Regulation) Act, 1956 the power to regulate stock exchanges was delegated to SEBI. This includes recognition, rules, articles, voting rights, delivery contracts, stock exchange listing and nomination of public representatives.

-Merchant banking brought under SEBI regulatory framework and a code of conduct issued.

-SEBI notified regulations for primary and other secondary market intermediaries, bringing them within the regulatory framework.

-The 'Banker to the issue', brought under purview of SEBI for investor protection.

-The due diligence certificate by lead managers regarding disclosure made in the offer document, has been made a part of the offer document itself for better accountability and transparency on the part of the lead managers.

-New reforms by SEBI in the primary market included improved disclosure standards, introduction of prudential norms and simplifications of issue procedures.

-Companies required to disclose all material facts and specific risk factors associated with their projects while making public issues.

-The stock exchanges required to ensure that the companies concerned have a valid acknowledgment card issued by SEBI. SEBI vets the offer document, to ensure that all disclosures have been made by the company, in the offer document, at the time the company applies for listing of its securities to the stock exchange.

-Stock exchanges advised to amend the listing agreement to ensure that a listed company furnishes annual statement to the stock exchanges showing variations between financial projections and projected utilisation of funds made in the offer document and actuals. This will enable shareholders make comparisons between performance and promises.

-To discourage the use of stock-invest by institutional investors, the facility has been restricted to mutual funds and individual investors.

-SEBI introduced a code of advertisement for public issues for ensuring fair and truthful disclosures.

-To reduce cost of issue, underwriting by issues made optional, subject to the condition that if an issue was not underwritten and was not able to collect 90 per cent of the amount offered to public, the entire amount collected would be refunded to the investors.

-Redressal of complaints of investors is to be encouraged sharing it with recognised investor associations. This will facilitate filing of case action suits in consumer courts against erring companies.

-The extant guidelines for the bonus shares have been relaxed.

-SEBI introduced regulations governing substantial acquisition of shares and takeovers and lays down the conditions under which disclosures and mandatory public offers are to be made to the shareholders.

-SEBI reconstituted the governing boards of the stock exchange, introduced capital adequacy norms for brokers and made rules for making the client/broker relationship more transparent, in particular, segregating client and broker accounts.

- "Renewal" of transactions in 'B' group securities prohibited, so that transactions could be settled within 7 days.

-Private mutual funds permitted and a few such funds have already been set up. All mutual funds allowed to apply for firm allotment in public issues.

-UTI brought under the regulatory jurisdiction of SEBI.

-Fresh guidelines for advertising by mutual funds issued by SEBI and the requirement of pre-vetting of advertisements removed by SEBI.

-To improve the scope of investments by mutual funds, mutual funds were permitted to underwrite public issues and the guidelines for investment in money market instruments were relaxed.

-Over the Counter Exchange of India (OTCEI) and the National Stock Exchange of India with nationwide stock trading and electronic display, clearing and settlement facilities commenced operations.

-The practice of making preferential allotment of shares at prices unrelated to the prevailing market prices was stopped and fresh guidelines were issued by SEBI.

-Foreign Institutional Investors (FII) allowed access to Indian capital markets on registration with SEBI. 286 FIIs have been registered by the end of January 1995.

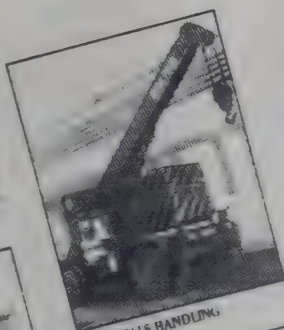
-The procedures for lodgement of securities for transfer was considerably eased for domestic and FIIs through the introduction of 'jumbo' transfer deeds and consolidated payment of stamp duty.

-Indian Companies permitted to access inter

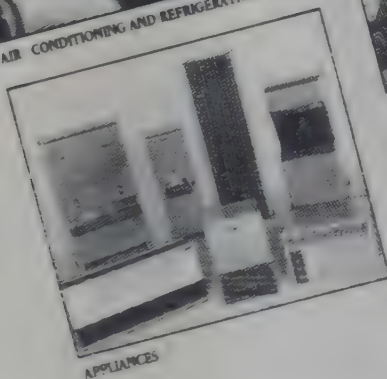
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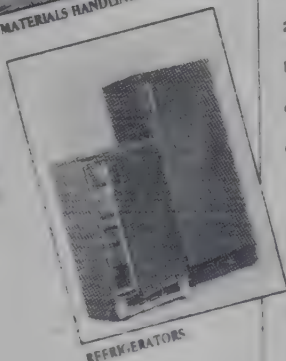
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national capital markets through Euro equity shares.

- Investment norms for NRI's liberalised, so that NRI's and overseas corporate bodies can buy shares and debentures without prior permission of RBI.

(Economic Survey)

Term Loan

The other important source of finance for investment is through term loans by financial institutions. Both sanctions and disbursements show an upward trend. In 1993-94 the aggregate assistance sanctioned by all financial institutions was Rs. 414.44 billion, a rise of 26.8 per cent over 1992-93, while disbursements were Rs. 256.32 billion, a rise of 15.1 per cent.

Foreign Investments

This consists of NRI investments, foreign direct investments, foreign portfolio investments, and moneys raised by Indian companies overseas as equity and debt.

NRI's: The NRI investments broadly take the following forms:

- deposits under various schemes such as FCNRA, and other schemes;
- direct equity participation under various direct investment schemes;

and

- Portfolio investment.

The outstanding balances (inclusive of interest) under various NRI deposits (at end March) were:

US\$ billion	91	92	93	94	Jan.20th, 1995
Total	13.691	12.319	14.091	15.780	17.219

(Source: RBI)

While the phased discontinuation of matu-

rity slabs under FCNRA resulted in an outflow of US\$ 1.317 billion in 1993-94, these were more than compensated by inflows under schemes such as NR (NR) RD and the FCNR(B) which were introduced as a part of the measures to restructure various deposit schemes for the NRI's.

The improvement in the response of the NRI's to the liberalised environment climate is evident from the significant increase in the amount of investment proposals from the NRI's overseas corporate bodies (OCB's) approved during 1993. However there was no change in the value of approvals under the portfolio investment schemes, which continued to remain at low levels. The inflows were only a small proportion of approvals, though the proportion is rising.

Direct Foreign Investment (foreign collaboration)

These come under 3 categories; those subject to automatic approval by RBI; those approved by the (SIA) Secretariat for Industrial Approvals; and those that are approved by the (FIPB) Foreign Investment Promotion Board, the difference between them being dependent on the size and extent of foreign equity.

The following two tables give details of foreign collaboration approvals and the actual inflows.

The FDI approved during January-February 1995 at Rs. 2120 crores is 162.7 per cent more than that in the corresponding period last year. The striking feature is that the growth in number of total foreign collaborations is only 57.1 per cent while the amount wise growth is 162.7 per cent thereby indicating that foreign collaborators are entering capital intensive industries. Another notable feature is that growth in financial collaborations has also picked up from 39.1 per cent in January-February 1994 to 64.4 per cent in January-February 1995. It has been good from actual investment point of view also as the growth in actual investment in this period is also more pronounced registering 267.1 per cent growth over the corresponding period last year.

Value of Approvals for Investment by NRI's

(Rs. billions)

Year	On Repatriation basis	On non-repatriation basis	Portfolio investment	Total	Actual inflow
1989	3.3705	0.6520	0.0309	4.0534	
1990	2.0246	0.1724	0.0618	2.2588	
1991	2.0708	0.0704	0.0487	2.1899	1.602
1992	13.5438	0.0202	0.2774	13.8414	1.496
1993	22.6322		0.2739	22.9061	5.596
1994	NA	NA	NA		11.083
1995	NA	NA	NA		8.525
Total (1991 to May 1995)	NA	NA	NA		28.304

(RBI: Actual figures taken from SIA-June, 1995).

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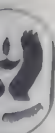
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Foreign Collaboration Approvals - Comparative Figures

	1991	1992	1993	1994	1995
Total No. of Foreign Collaboration approvals by:					
(i) SIA	760	585	307	382	231
(ii) RBI	188	736	676	702	343
(iii) FIPB	2	199	493	770*	341#
Total	950	1520	1476	1854	915
No. of FC approvals involving Foreign investment					
(i) SIA	246	243	59	92	58
(ii) RBI	41	251	235	201	95
(iii) FIPB	2	198	491	769*	340#
Total	289	692	785	1062	493
Total amount of foreign investment involved (Rs. in billions)					
(i) SIA	3.60	4.20	1.60	3.20	1.20
(ii) RBI	1.40	7.80	6.60	5.30	1.50
(iii) FIPB	0.30	26.90	80.40	133.40*	72.10#
Total	5.30	38.90	88.6	141.90	74.80

Foreign Investment

(Rupees billion)	1991	1992	1993	1994	1995
				(Upto 31 May)	
Total Number of Approvals	95	1520	1476	1854	915
Total Foreign Investments	5.3	38.9	88.6	141.9	74.8
Inflow From:					
Portfolio	0.20	2.82	109.63	98.53	17.13
					(Apr. '95)
GDR's		2.64	45.88	54.14	NA
FCCB's			28.69	NA	NA

Note [1] Includes 22 proposals for Global Depositary Receipts (GDR) involving investment of Rs. 52.3 billions [2] #Includes 2 proposals for Global Depositary Receipts (GDR) involving investment of Rs. 7.1 billion [3] Figures for 1995 updated to 31.5.1995 [4] Inflow figures are converted in Rupees billion by using average exchange rate for the corresponding period [5] Inflow figures are for financial year, 1991 figure refers to 1991-92 and soon. [6] 1994-95 inflow figures are for the period Apr.-Dec.

Source: Economic Survey, 1994-95 and SIA, June 1995.

Monthly Statement of Actual Inflow of Foreign Direct Investment/NRI Investment Report for the Month of May, 1995

(Rs. billion)

Actual inflow of direct Foreign investment in respect of	1991	1992	1993	1994	1995 (upto May, 1995)	Total 1991 to 1995 (up to May)
1. Government's approval	1.9118	4.7795	9.8516	15.0076	16.1151	47.6656
2. RBI's automatic approval	Nil	0.4754	2.4110	3.6258	3.9829	10.4951
3. NRI's						
[a] 40% Scheme	1.6025	1.4798	4.8980	8.5244	8.5257	28.3041
[b] 100% Scheme	Nil	0.0171	0.6979	2.5587		
Total	3.5143	6.7518	17.8585	29.7165	28.6237	86.4648

Total — Rs. 86.4648 billion (1991 to May, 1995)

Source: Reserve Bank of India, Bombay

* Provisional (SIA)

The USA remains the leading foreign investor in India throughout, followed by the UK. In 1995, for which figures are available till May, Germany which held third place in earlier years, has been overtaken by Thailand. Another important spurt in 1995 has come from Malaysia and Canada. Other large investors in 1995 have been Belgium, Denmark, Portugal, Indonesia and Switzerland.

Figures for investments approved between August 1991 and May 1995 are available state-wise. West Bengal has jumped to second place after Maharashtra among the states that have had approvals for foreign investment.

Statewise Breakup of Foreign Direct Investment Approvals during the Post Policy Period (i.e. 1-8-1991 to 31-5-1995)

State	August 1991 - May 1995 No. of approvals	Investment (Rs. billion)
Maharashtra	464	57.3511
West Bengal	101	37.0131
Delhi	235	35.7142
Tamil Nadu	275	24.4211
Gujarat	143	24.1429
Orissa	24	17.4346
Andhra Pradesh	163	12.8250
Madhya Pradesh	59	9.8261
Uttar Pradesh	120	7.9874
Karnataka	205	7.7942
Punjab	34	5.1212
Rajasthan	85	4.5450
Haryana	142	4.2095
Himachal Pradesh	14	2.7712
Pondicherry	18	1.1503
Goa	22	0.9092
Kerala	36	0.8549
Bihar	12	0.7929
Chandigarh	10	0.7236

Dadar & Nagar Haveli	11	0.472
Arunachal Pradesh	2	0.110
Daman & diu	6	0.054
Assam	4	0.015
Andaman & Nicobar	5	0.010
Tripura	1	0.007
Lakshadweep	1	0.005
Others (State not Indicated)	1042	92.158
Total	3234	348.447
(S.I.A)		

FDI seems to be concentrated in Maharashtra, West Bengal and Delhi. Tamil Nadu and Gujarat come next. The worst off among the large states are Kerala and Bihar.

However, the pace of implementation is slow. Thus, only 300 out of 2171 cases approved for foreign investment between July 1991 and April 1994 were able to acquire land, or factory. Out of these only 200 have been able to begin construction of factories.

It is interesting to see where foreign direct investment is likely to flow in the coming years from the sanctions already given for investment.

1. Power: Even though the first phase of the Enron agreement has been announced as repudiated and the second phase as cancelled by the Maharashtra government, it can be expected to be revived in some form in the future. The Enron situation is not expected to adversely affect the other seven large "fast track" power projects or the many other smaller ones already approved or on their way to approval. The seven projects are likely to have a total investment of Rs. 406.08 billion. Enron had proposed a project cost of Rs. 90.15 billion at Dabhol.

The basic problem for power projects in India is the poor financial performance of the State Electricity Boards who are the customers, and

Inflow of Foreign Investment

	Foreign collaborations approved (Nos)						Foreign investment (Rs. billion)				
	Total			Financial			Approved		Actual		
	1993	1994	1995	1993	1994	1995	1993	1994	1995	1994	1995
January	83	142	188	35	69	96	8.16	2.59	5.57	1.35	4.42
February	121	103	197	62	66	126	15.70	5.48	15.63	1.66	6.63
March	110	134	—	52	76	—	1.81	3.72	—	2.93	6.53
Jan-Mar	314	379		149	211		25.67	11.79		5.94	17.58
		(20.7)			(41.61)			(-54.1)			(196)
Jan-Dec	1476	1832		785	1040		88.59	89.57		29.68	
		(24.12)			(32.5)			(1.1)			
Jan-Dec	204	245	385	97	135	222	23.86	8.07	21.20	3.01	11.05
		(20.1)	(57.14)		(39.2)	(64.4)		(-66.2)	(162.7)		(267.11)

(RBI)

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Statement Showing Country-wise Breakup of Foreign Direct Investment Approved During 1991 to 1995

(Rs. in billion)

Name of country	1991	1992	1993	1994	1995
1. USA	1.8585	12.3150	34.6185	34.8809	17.6934
2. UK	0.3210	1.1767	6.2273	12.9915	11.1642
3. Germany	0.4180	0.8627	1.7593	5.6936	1.7338
4. Maruitius			1.2424	5.3474	1.7069
5. Japan	0.5271	6.1023	2.5743	4.0090	0.4770
6. Italy	0.1781	0.8939	1.1735	3.9094	3.1331
7. Australia	0.0261	0.7762	0.2956	3.8845	1.0632
8. Singapore	0.0137	0.6021	0.6674	2.6550	1.5190
9. Netherlands	0.5592	0.9679	3.2165	2.0696	3.0754
10. Hong Kong	0.2115	0.5708	0.8795	1.6478	1.3301
11. Korea(South)	0.0615	0.3940	0.2933	1.0685	0.7863
12. Russia	0.0861	0.1159	0.0195	1.0569	0.0010
13. France	0.1933	0.2964	1.2909	0.8973	0.7829
14. Denmark	0.1117	0.2523	0.3199	0.5330	1.0835
15. U.AE.	0.0220	0.0645	4.0449	0.5123	0.0010
16. Afghanistan			0.0010		
17. Armenia			0.0010		
18. Austria	0.0159	0.0614	0.1557	0.2497	0.0638
19. Bahamas		0.0075		0.0812	0.0048
20. Bahrain		0.0040	0.0041	0.0484	
21. Belgium	0.0161	0.2370	0.0600	0.0766	1.4364
22. Belorussia			0.0005		
23. Bermuda		0.0332		0.2603	0.1337
24. Brazil	0.0001	0.0011			
25. British Virgin Islands		0.0053	0.0460	0.0365	0.0652
26. Canada	0.0486	0.0078	0.2728	0.4204	3.7792
27. Cayman Island			0.0330	0.0350	
28. Channel Island				0.0125	
29. China	0.0075		0.6166	0.2725	
30. Cyprus				0.0003	0.0044
31. Czech Republic			0.0044		0.0007
32. Czechoslovakia		0.0526			
33. Estonia			0.0700		0.0031
34. Finland	0.0253	0.1050	0.0207	0.1037	0.1075
35. Hungary			0.0227	0.0016	
36. Indonesia		0.0190	0.0038		1.2000
37. Ireland		0.0001	1.6564	0.0641	0.1310
38. Israel		0.0127	0.0146	0.0852	0.1496
39. Kazakistan			0.0150		
40. Korea(North)	0.0016				
41. Kuwait		0.0009	0.0005	0.3459	
42. Latvia		0.0026			
43. Luxembourg			0.0290		0.0217
44. Malaysia	0.0018	0.7443	0.0848	0.2522	3.3445
45. Maldives				0.0060	
46. Mexico		0.0528	2.3898	0.0001	0.0816
47. Nepal				0.0002	
48. New Zealand		0.0032	0.0005		0.4928
49. Nigeria				0.0154	
50. Norway	0.0038	0.0092	0.0267	0.0032	0.0010
51. Oman			5.4298	0.1738	0.0310
53. Panama			0.0255		
54. Papua New Guinea					0.0192
55. Philipines		0.0500	0.1325	0.0410	0.3111
56. Poland	0.0004		0.0015		

7. Portugal	0.0016	0.0120	0.1400		1.7356
8. Qatar		0.0453			
9. Saudi Arabia		0.0031	0.1087		0.0012
10. Scotland					0.0005
11. Slovakia			0.0005		
12. South Africa				0.0025	0.1578
13. Spain	0.0033	0.0192	0.0980	0.0202	0.0007
14. Sri Lanka			0.0151	0.0243	
15. Sweden	0.0698	0.4841	0.0062	0.1164	0.8336
16. Switzerland	0.3550	6.8976	4.2680	0.4830	1.0485
17. Taiwan	0.0045	0.1800	0.1001	0.1020	0.0258
18. Thailand		0.0252	3.6842	0.0998	6.2199
19. Ukraine		0.0084	0.0028	0.0045	
20. Uruguay		0.0001			
21. West Indies		0.0030		0.0005	
22. Yugoslavia		0.0044			
23. NRI*	0.1970	4.3913	10.4332	4.9088	3.0753
24. Euro Issues**				52.3044	7.0988
25. All countries including above	5.3411	38.8754	8.85933	14.18719	74.7296

ote: [i] Figures for 1995 updated to 31-5-1995; [ii] Ranking of all countries according to 1994 approval figures; Represents NRI proposals only Represents proposals for Global Depository Receipts (GDR). (S.I.A)

who in turn supply power to consumers who are priced at cost, below cost or free, or steal the power. Reform of SEB's is the fundamental issue to be addressed. The other is the need for an independent authority to regulate this industry.

2. Telecommunications

It has been announced that Indians can use telephones on demand by 1997. The investment required for this purpose is Rs. 600 billion, of which government investment planned till 1997 is Rs. 370 billion. Almost every major telecom company is bidding for a share of this market. According to very rough estimates, foreign investment for setting up the basic services to add about 10 million plain telephone lines over the next three years is US\$ 1 billion. This is without taking count of many applications lying in smaller towns.

Foreign equity is allowed up to a limit of 49 per cent. Only one new license is to be given on one telecom circle (out of 18 circles and 4 metropolitan networks). Still to be decided are technical standards, fixing access charges for private operators for using DOT network, and price

regulation. A Telecom Regulatory Authority of India is to be set up.

In value-added services also (E-mail, voice mail, data service, video conferencing, video text services) no investments have yet taken place.

Cellular services have however, started in some cities. Another major area for investment is radio transmission for new rural connections. Expenditure on transmission equipment could reach almost US\$ 1 billion in 1995.

3. Crude Oil Four offshore oil fields are expected to receive investment of US\$ 1.2 billion. The Bombay High Development Project is likely to cost up to US\$ 3 billion.

4. Roads The Government of India has a 20-year road plan that has targetted an addition of 31,942 km. to India's national highways. The total cost of construction in this plan is Rs. 600 billion. Problems in implementation are due to adhocism without an overall policy, the need for counter-guarantees and assured re-

turn on equity. Just 3 key projects are on hand, for fairly short length of roadways and bridges, but have an investment proposed of Rs. 50 billion.



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Liberalization of India's Investment Regime in Selected Key Sectors, 1991-94

Sectors	Reserved for the Public Sector		Remarks
	June 1991	March 1994	
Mining	Yes	No	In March, 1993, the Government tabled in Parliament a new National Mineral Policy to open mining (except for hydrocarbon, uranium and coal) to the private sector for the first time in decades. Foreign equity participation up to 50 percent would be allowed, with majority ownership to be allowed on a case by case basis. In February 1994, the Mines and Minerals (Regulation and Development) Act, 1957 was amended in line with the new National Mineral Policy. Investment in 'captive' mines have been allowed. In March 1994 the Coal Ministry offered 13 proven coal mines to private power, iron steel companies and power companies, including foreign companies.
Coal	Yes	No	Investment in 'captive' mines have been allowed. In March 1994 the Coal Ministry offered 13 proven coal mines to private power, iron steel companies and power companies, including foreign companies.
Hydrobons	Yes	No	Effort to attract car private investors have intensified; however, results have been modest.
Manufacturing	Yes	No	In July 1991, a New Industrial Policy (NIP) (i) reduced the number of industrial sectors reserved exclusively for public sector investment from seventeen to eight (coal, oil, mining of ferrous metals, mining of non-ferrous metals, mining of atomic minerals, defence equipment and ammunition, atomic energy, railway transport, Annex I of the NIP); (ii) abolished the requirement for prior government approval for domestic investments except for those in eighteen "sensitive" industries specified on a negative list (annex II of the NIP) which account for about 20 per cent of manufacturing values added; and (iii) granted "automatic approval" for new foreign investments up to 51 per cent of equity and foreign technology agreements in 34 sectors (accounting for close to 50 per cent of value added in manufacturing) designated on a positive list (annex III of the NIP). In April 1992, the Government added electronic software to the 34 priority sectors. In April 1993, three important sectors (leather except chamois leather, motor cars and "white goods") were deleted from Annex II of the NIP.
Electricity	Yes	No	In June 1992 the Government opened the power sector to private investment with foreign participation allowed up to 100 per cent of equity.
Railways	Yes	No	Some steps have been taken to attract private sector participation through "own your own wagon" schemes.
Air Transport	Yes	No	Since November 1992, private airlines have been allowed to compete in the domestic market with the two dominant public sector airlines (Indian Airlines and Air India) but until the Air Corporation Act of 1953 was repealed in February 1994, the private airlines fell under the statute of "air taxis" which meant, for example, that they could not publish their time schedules.

ts	Yes	No	Private sector investments and operations are being increasingly encouraged. Prior approval required.
ads	Yes	No	Institutional obstacles remain.
ecommuni-	Yes	No	Private sector for ign and domestic only allowed for the provision of "value added" services.
ons			
tal Service	Yes	No	Private couriers, domestic and foreign, are allowed to compete with the public sector.
king	Yes	No	In January 1993, the RBI announced guidelines for entry of new private commercial banks.
urance	Yes	No	Private sector entry under consideration (para. 1.39)
World Bank, India)			

The following table gives a summary of the extent of liberalization in selected key sectors.

7. Liberalization of India's Investment Regime in Selected Key Sectors The following tables show the industries in which foreign investments have been approved for investing. It must be noted in the light of the earlier discussion that the investments in power, telecom, and metals are likely to shoot up in coming years and dominate the foreign investment.

Foreign Investment Approved

August 1991 to March 1995	
Over	14.0%
Refining	16.7%
Food Processing	9.8%
Electrical equipment	7.9%
Chemicals	6.5%

Portfolio Investment (US\$ billion)

	1991-92	1992-93	1993-94	1994-95
Portfolio Investment	0.008	0.092	3.493	3.448
Equity FIIs	0	0.001	1.665	1.607
Debt Euro Equities	0	0.086	1.463	
Offshore Funds	0.008	0.005	0.365	

Source: Economic Survey 1994-95; Economic Times 31st August 1995

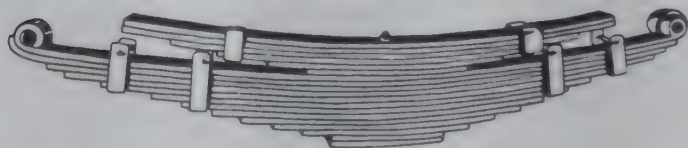
Secondary Markets

The Indian Stock Market indices fell almost throughout 1995.

Performance on the Stock Exchange

Month	Avg. Daily T/O				Returns (%)	
	BSE (Rs. Billion)	NSE Sensex	OTCEI Index	BSE Index	NSE	OTCEI
June 1994	2.650		0.008	6.7		19.0
July 1994	2.350		0.012	2.5		24.5
August 1994	3.350	—	0.014	9.5	—	15.7
September 1994	2.990		0.016	-67		6.8
October 1994	2.770		0.017	-01		11.6
November 1994	2.720	0.070	0.017	-35		-03
December 1994	2.060	0.070	0.018	-48	-59	-55

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January 1995	1.670	0.150	0.016	-78	-84	-20
February 1995	1.590	0.230	0.014	-55	-69	-69
March 1995	1.270	0.370	0.008	-47	-25	-91
April 1995	1.030	0.340	0.009	-39	-63	-47
May 1995	1.200	0.720	0.008	7.0	5.4	-82
June 1995	2.070	0.870	0.008	-31	-43	-78
July 1995	2.530	0.990	0.011	4.3	3.5	-22

Source: Monthly Review, July 1995, CMIE.

This has brought the P/E ratio down by over 50 per cent in 1994-95 over the previous year. The P/E ratio in June 1995 was 19.61 (on the Bombay Sensex) versus 34.18 in the 1994 and 35.95 in July 1995.

Between August 1993 and February 1994 the segments in stock markets improved because of large purchases by foreign institutional investors;

favourable monsoon;

government assurance of protection of investors' interest against shares attached in the scam.

improvement in the balance of payment position;

rising foreign exchange reserves; and

improved performance of companies

After March 1994, the retreat of markets was because of

i. ban on carry-forward transactions by SEBI requiring brokers to square up their outstanding positions as on March 11, 1994.

ii. rise in interest rate in the USA causing FII withdraw temporarily.

In 1995, further improvement in corporate results resulted in some upward movement in share prices. However the state election results going against the Congress in 1994, the Mexican crisis causing FII's to be cautious, along with the fall in values in many emerging markets, rising interest rates, continued ban on badla, all helped keep the equity prices down.

The problems bedevilling portfolio investments are the differential rates of capital gains taxes favouring foreign versus Indian investments and the so-called "Mauritius" route. India has an agreement with Mauritius under which there is no tax deduction at source on capital gains for investments from Mauritius. Mauritius does not levy such a tax. Hence portfolio investors from Mauritius can enter and exit the Indian market at no cost in taxes, which acts as a disincentive for such volatile movements by other investors. The Mauritius route tends to make foreign institutional investments in India much more volatile or "hot".

Indian Investment Abroad

According to RBI, there were 430 joint ventures abroad by Indian companies. Of these, 167

were in operation and 263 in different stages of implementation. Indian companies had equity participation of Rs. 1.418 billion in end December 1993. Of the 167 operating joint ventures, 58 per cent were in manufacturing.

The joint ventures were spread over 62 countries with East Asia 60 (36%), Europe-America 33 (20%), Africa 28 (16.7%), South Asia 23 (13.7%), West Asia 19 (11.3%) and Oceania 4 (2.3%). There were also 172 wholly owned subsidiaries of Indian companies at end December 1993. Of these 52 were in operation and 120 in different stages of implementation. (Total equity: Rs. 3.449 b.)

The limit for overseas investment by Indian companies is US\$ 0.005 m. Investments upto US\$ 0.004 million are now subject to automatic approval. It is reported that investments in Nepal and Sri Lanka are picking up rapidly since mid 1994.

The Indian investments overseas remain at low levels. The limits on foreign investment imposed by government, the opportunities available in India, the lack of many Indian brands, are some of the reasons.

Conclusion

With economic growth and a changing demographic composition, the prognosis for rising savings in India in coming years is good, despite reported decline in the last few years. There appears to be some improvement in capital formation in agriculture on private account, not on public account. In industry there is a preference for equity to debt in the private sector. The public sector continues to go for high debt mainly because of the high government equity. Foreign direct investment is showing an upward trend, though approvals are far ahead of actuals, and implementation is slow. The dominant fields for FDI are likely to be in infrastructure investments. Foreign portfolio investments have been large and because of the "Mauritius route", even more volatile than is normally the case. NRI investments are rising. Asian countries are showing more interest in investing in India. The poor record of public investment is a worry and could create problems for future economic growth.

■ Prof. S. L. Rao,

Director General, National Council of Applied Economic Research, New Delhi.

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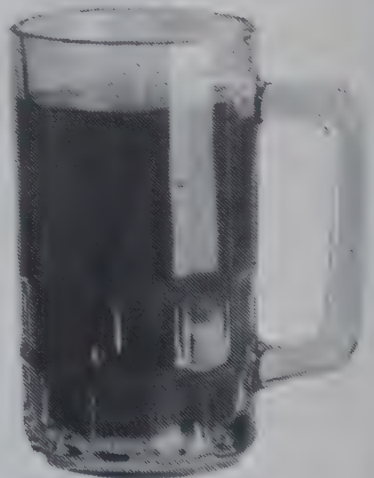


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Science Scan

Eating Depression

A new finding that depression among men and women 65 and older nearly triples the risk of stroke has underscored the need to treat depression in the elderly. The treatment has the additional advantage of protecting them better than other diseases.

A study of more than 10,000 elderly men and women, all told by their doctors that they had hypertension, and all with blood pressure readings higher than 160/95 or on medication for hypertension, found that over a three-year period, those with symptoms of depression suffered strokes at up to 2.7 times the rate of those being treated for hypertension but without depression.

"If elderly people have depression, it complicates their medical risk across the board," says Eleanor Simonsick, an epidemiologist at the National Institute on Aging in USA. "The most common symptoms of depression

include an "empty" feeling, continuing sadness and anxiety.

Fatigue, tiredness, lack of energy.

Loss of interest or pleasure in ordinary activities like sex.

Sleep problems, including waking too early in the morning.

Problems with eating and weight, like weight gains or losses.

Crying a lot.

Aches and pains that just won't go away.

Difficulty concentrating, remembering or making decisions.

Feeling that the future looks grim.

Feeling extremely guilty, helpless or worthless.

Irritability.

Thoughts of death or suicide, or a suicide attempt.

While some of these problems may be dismissed by observers as "just a sign of aging,"

they can be warning signs of clinical depression. If several of these symptoms last for more

than two weeks, a doctor, preferably a psychiatrist or geriatric specialist, should be consulted.

Other studies have found that elderly people with depression fared worse in recovering from

an attack, from hip fracture and from severe illnesses like pneumonia and had more difficulty regaining functions like walking after

being stricken by diseases of all kinds.

One obvious reason for the higher risk of stroke among the depressed, another expert Dr. Gene Cohen said, is that "if you're depressed, you're less motivated to be diligent in staying on top of eating right or treating your hypertension."

For some, these lapses in treatment may be a "covert suicidal act," he said. For such patients, despairing thoughts, like "So what—nobody cares what happens to me anyway," can lead to a failure to take essential medications.

Another increased medical risk is biological. "Prolonged depression interferes with the functioning of the immune system," Dr. Cohen said. "If you have a broken hip or an infection, the depression slows the rate of recovery which can in turn worsen the depression."

Of the 32 million Americans 65 and older, about six million suffer from some level of clinical depression, said Dr. Barry Liebowitz, chief of the Mental Disorders Among the Aging Research Branch at the National Institute of Mental Health.

Of these, the depression of at least 75 percent is undiagnosed and goes untreated, even though a large share are routinely treated for other illnesses by doctors who fail to recognize that they are depressed, he added.

"The major reason depression is not diagnosed is that doctors don't ask," said Dr. Deborah Marin, director of geriatric psychiatry at Mount Sinai Medical School in New York. "And older people don't divulge it unless they're probed, because for their generation there is such great stigma to having a psychiatric problem."

Poliomyelitis

Dr. Jonas Edward Salk, the American microbiologist, credited with the discovery of polio vaccine, died in La Jolla, California at the age of 80. He pioneered research in 1950 leading to the discovery of a vaccine for a dreaded viral disease, poliomyelitis, which affects the spinal chord, often causing paralysis, particularly in children. This discovery came at a time when polio was taking heavy toll of victims and was hailed as the most momentous medical discovery and Dr. Salk was instant saviour. After a medical test the vaccine was accepted in 1955 as a safe and effective way of immunisation

against polio. In 1957, Dr. Albert Bruce Sabin developed a method of using strains of live polio virus to produce a vaccine capable of creating immunity against the disease. This vaccine could be administered orally and has come to be known as the Sabin vaccine. This vaccine came to be in use in the U.S. from 1960.

The work on the poliomyelitis virus did attract prize. By sheer quirk of fate it did not go to Dr. Salk or Dr. Sabin but to three microbiologists of Harvard Medical School and that too, before the Salk vaccine was medically evaluated and declared effective in 1955. The three were John Enders, Thomas Weller and Fredrick Robin who were engaged in experiments relating to the development of tissue culture in glassware and in an environment free of contamination of the tissue culture by bacteria.

The Enders-Weller-Robin trio, purely by chance, decided to experiment with the polio virus in a tissue culture medium treated with antibiotics to see if the culture would come free of bacterial contamination. In fact, it did. Thus a method for breeding the poliomyelitis virus in the test tube was developed. The trio received the Nobel Prize in 1954 for their work.

This opened a new chapter in immunology. Dr. Jonas Salk, who was then working on virus at the University of Pittsburgh, discovered that the polio virus killed by a chemical means such as formaldehyde, could produce immunity in the human body when administered hypodermically and keep the dreaded virus at bay. The vaccine so developed came to be known as Salk Vaccine.

Total Solar Eclipse

India witnessed total solar eclipse on 24th October 1995, after a gap of 15 years. The event was marked by appearing of the beautiful 'Diamond Ring'.

Solar eclipse occurs two to five times every year, five being exceptional; there were five in 1935 and will be five again in 2206. The average number of total solar eclipses in a century is 66 for the Earth as a whole. Any point on Earth may, on the average, experience no more than one total solar eclipse in three to four centuries. A solar eclipse's maximum duration of totality is only seven and a half minutes.

Optical illusion The Moon is very close to the Earth compared to the Sun. By a remarkable coincidence, their sizes and distances are such that for an observer on the Earth, they seem to be of the same size (Angular size). If the Moon



is at a far off distance, it will not be able to completely cover the Sun but cast only a shadow on it.

Visibility A total solar eclipse can be seen from only a limited part of Earth. It is visible only from the seas or from some inaccessible and uninhabited areas such as mountains, deserts and forests, mainly because two-thirds of the earth surface are covered by rivers and oceans. This time the eclipse was visible all over India. In fact, several heavily populated cities and towns in the north were under the very path of totality.

Research The phenomenon also offers scientists a rare chance to conduct certain observations which can be conducted only during a total eclipse such as the surface features and phenomena of the sun. Important scientific milestones achieved by studies include confirmation made during the total eclipse of 29,1991 of Einstein's theory of general relativity, which predicted bending of light by gravity, discovery of a bright comet on the photographs of the total solar eclipse of May 17, 1901, and the observation of the spectral line of the element Helium for the first time during the total solar eclipse of August 18, 1861 at Guwahati in Andhra Pradesh.

The totality in India began at 8.31 A.M. when the moon's umbral shadow reached the northwestern region after crossing Iran, Afghanistan, and Pakistan. At 8.51 A.M. the umbral cone crossed into the Bay of Bengal, Bangladesh and entered Myanmar, Thailand, S. China Sea, N. Borneo and the Pacific Ocean. The maximum duration of the totality in

ed from 48 seconds in western Rajasthan
82 seconds in West Bengal along the
tral line of the track over which the moon's
ral shadow moved.

rtual Reality

rtual Reality (VR) technology has created a
or breakthrough in the way humans interact
computers and amazing strides have, so
een made in the effort to develop more life-
computer generated world.

rtual reality programs give users three
ntial capabilities—immersion, navigation,
manipulation. People must be immersed in
alternate reality, not merely to feel as if they
viewing it on a screen. To this end, some
grams require people to wear headphones,
special controllers or foot pedals, or wear
glasses.

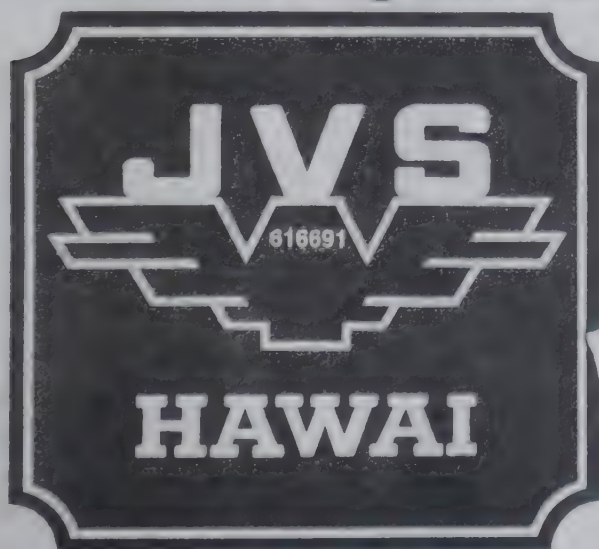
Many amusement parks now have rides
attractions that use virtual reality prin-
s for creating exciting alternate realities for
audiences for example, a simulated ride
spaceship, complete with near collisions
enemy attacks. Acceleration and decelera-
are simulated by pitching and moving
s, all computer-controlled and cleverly co-

ordinated with stereo sound effects and wrap-
around video displays.

As personal computers became faster and
more powerful in the late 1980s, software de-
velopers discovered that they were able to write
programs as large and as sophisticated as those
previously run only on mainframes. The mas-
sive million-dollar flight simulators on which
military and commercial pilots trained were the
first real-world simulations to be moved to the
personal computer.

Flight simulators are perfect examples of
programs that create a virtual reality, or a
computer-generated reality in which the user
does not merely watch but is able to actually
participate. The user supplies input to the sys-
tem by pushing buttons or moving a yoke or
joystick, and the computer uses real-world data
to determine the results of those actions. For
example, if the user pulls back on the flight
simulator's yoke, the computer translates the
action according to built-in rules derived from
the performance of a real airplane. The monitor
will show exactly what an airplane's viewscreen
would show as it begins to climb. If the user
continues to climb without increasing the
throttle, the virtual plane will stall (as would a
real plane) and the pilot will lose control. Thus
the user's physical actions are immediately and

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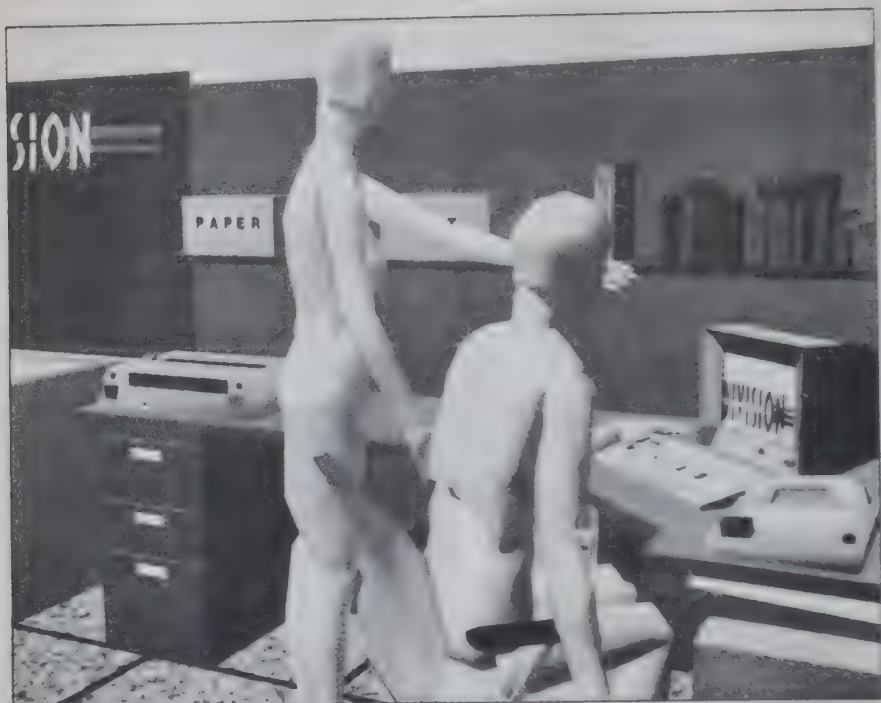


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realistically reflected on the computer's display. For all intents and purposes, the user is flying that is, the plane obeys the same laws of nature, has the same mechanical capabilities, and responds to the same commands as a real airplane.

VR realism has graduated from the visual impact of helmet-mounted goggles and a sensory glove to a "smart skin" — a sort of whole body stocking which allows the participant to exchange stimuli with a remote or even purely 'virtual partner'.

Using new types of simulators which respond to body movements, and action sports like skiing, surfing or even hand-gliding can be experienced in more realistic ways than ever before. Virtual reality humanoids could be one of the many possible ways of representing people in virtual organisations.

But the more exciting application of the technology, apart from the futuristic entertainment industry, is in education and business. This ranges from simulation and training, the teaching of people with special needs, computer-aided design in architecture, engineering, medicine to aero-simulation for training pilots both for civil and combat purposes.

Virtual reality is now enabling 'The Virtual Catwalk' allowing remote buyers to see computer-generated images of garments being worn by models in virtual fashion shows, designers to convert their technical drawings

of buildings, oil-rigs, ships and factories into highly realistic 'virtual worlds' that engineers or prospective customers can wander through a view as if they were real.

Chemistry is another area where this technology is starting to be used. Virtual reality is helping scientists to visualise complicated molecules and proteins and how they react together. Experience these essential three-dimensional structures in this way helps to improve understanding of how their shapes affect their function, and speed up the development of new drugs.

ment of new drugs.

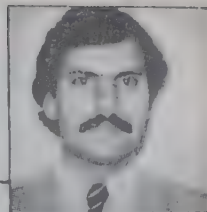
Britain's Royal Navy is planning to use a simulator - running a type of virtual reality technology known as Equipment Emulation - to train its technicians in the maintenance and repair of Sea Harrier jet aircraft. Training will be able to practise fault-finding, with no risk to real environment would be too difficult or dangerous to reproduce.

Secrets of Sun's Pole

The pass over the south pole of the Sun by Europe's Ulysses space probe has produced surprising results. British and other scientists from the European Space Agency (ESA) have revealed the first findings of the probe's southern polar pass phase, which started in June 1994 and completes in November. The south polar region displayed unexpected magnetic and dynamic characteristics, which may cause scientists to revise their thinking on the magnetic structure of the Sun.

The first surprise was the low cosmic ray ionisation activity above the south pole and the apparent absence of a south magnetic pole. Project scientist Richard Marsden explains: "We expected the Sun to have a relatively simple magnetic field, such as the Earth's or that of a magnetised iron bar. We thought we were going to find a local increase in the field's intensity. But the probe did not detect any such thing."

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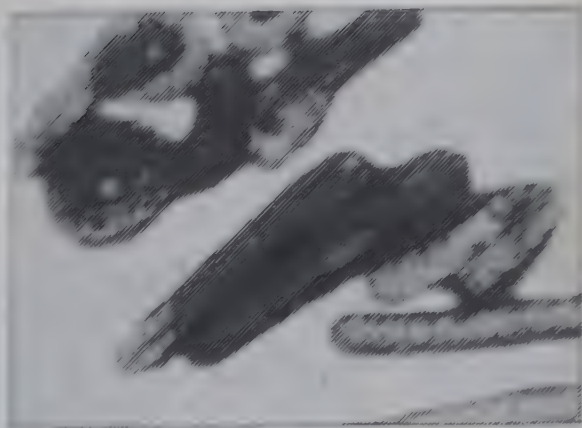
res). Some of them are ejected from one of 24 parking slots apportioned from 150 to 600 mile orbit breaking contact which failed to find parking slot. (Orbiting Astro-observatory launched by USSR 1966) launched by US (1964) Telstar 1 communication satellite launched by US (1965) Telstar 2 launched by US (1972) to landforms, vegetation, and was launched by US to photograph phenomena. The oldest orbiting orbiter 1 launched by US (1958) Transit 2A navigation satellite spy satellite of USA (1976). Hubble space panel detached during repair of space capsule (1993) con- of Mao's diamond planned to week got struck, etc.

of the Virus

me, telltale stick-like Ebola virus, 6 years, has arisen to kill again in break seemingly began with a 36-year-old technician identified only as "X". He arrived at a small medical center in the emergency city of Kikwit, Zaire, for emergency surgery. But after several days, surgeons realized they are not safe. His internal organs were hemorrhaging. His life was quickly lost. Soon after Kimfuma, a local medical worker who treated an Italian man who assisted in the surgery, began coming down with their symptoms: headache and fever, diarrhea, vomiting from every body orifice and, finally, death.

Ebola fever is an unfortunate fact of life in Africa, but this was no ordinary fever. The fourth outbreak ever recorded of Ebola Virus, which resists all treatment, kills up to 90% of its victims. It lives while the incubation period is 21 days, infectious disease. Ralph Henderson, an assistant director of the WHO, doubts the spread of Ebola like plague.

Ebola virus is suited to systemic. It kills victims so quickly they have much chance to infect others. Infected people become immune, the virus is not easy to pass on. The most highly contagious disease, tuberculosis or influenza, for instance, can't be transmitted with a cough. It's more like AIDS; direct contact with victim's blood or other body



fluids appears to be the only way to catch the virus. And contact with someone who's bleeding from every body opening is likely to be shunned in any case.

In the three earlier Ebola outbreaks the virus also flourished in hospitals, helped along by poor practices as leaving unsterilized needles. But the current crisis eased, at least temporarily, by an influx of medical supplies from the U.S., the European Union, and the UN have donated thousands of dollars worth of gowns, masks, caps, boots and gloves along with medicines and blood plasma enough to keep the outbreak contained.

Observes Yale epidemiologist Dr. Robert Ryder: "These viruses basically say to man: 'You stick to your territory and I'll stick to mine. But when man begins to encroach on the habitat of the viruses.'

Ebola is just one of several viruses to have emerged from the jungle in the past few decades; others include Lassa and Marburg in Africa, and Sabia, Junin and Machupo in South America. But the most insidious of all, of course, is the AIDS virus, HIV. It probably originated in Africa as well, but unlike Ebola, it was ideally suited to spread around the globe. It kills so slowly and leaves victims without symptoms for so long that they can infect many others before dying.

Are there other viruses as dangerous as HIV, or even more dangerous lurking on the edge of civilization?

Ergonomic keyboard

Nowadays computers are a part of every day life for many people. Their widespread use has revolutionized both work and leisure, but regular and sustained keyboard use has highlighted a number of possible health risks.

A new British designed keyboard — the Matrix



Ergonomic Keyboard is helping to alleviate the effects of Repetitive Strain Injury (RSI) and Work Related Upper Limb Disorders (WRULD).

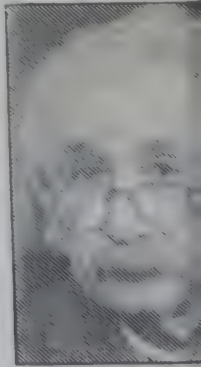
The new keyboard is the result of careful study into the causes of strain movements. The revolutionary design fits the shape of hands and the different lengths of fingers to reduce movement and tension. The keys are placed where the finger and thumb naturally rest or can easily reach. Its special split design helps to eliminate wrist twist, and the numbers are located in a central cluster to facilitate operation by left and right handed people. Tilted keys and pads minimise palms' downward movement (pronation) to further reduce muscle tension. Straight vertical key columns eliminate tens of thousands of finger and wrist twists in a days work. Thumb keys for cursors, enter, space, backspace, and other frequently used keys reduce hand and arm movements. Mr. Stephen Hobday is the keyboard's inventor and altogether about 700 Dual Handed Maltron keyboards are now in use worldwide.

Bose-Einstein condensate

By cooling atoms to temperatures far lower than ever before, physicists have been able to create a new state of matter in a laboratory.

The ability to create new matter was predicted by Einstein years before, building on the work of the Indian physicist Satyendra Nath Bose. A research was conducted by physicists Carl Wieman and Eric Cornell under a programme set up by US Commerce Department and National Institute of Standards and Technology (NIST) and the university of Colorado. A cloud of Rubidium atoms of an element rubidium were cooled on June 5, 1995, to less than 170 billionths of a degree above absolute zero, causing them to condense into a "superatom" that behaves like a single entity — or a new form of matter. 'This state could not have existed naturally anywhere in the Universe. So the same conditions in our lab is the only chunk of this stuff in the Universe, unless you look in a lab in some other solar system' said Cornell, NIST.

The gas created, called Bose-Einstein condensate, is so cold and so cold its atoms come to a near standstill. Absolute zero, -273.15°C , is the hypothetical point at which a substance would have no motion and no energy. But the temperatures can never be reached due to the laws of thermodynamics. Scientists have been trying to reach the low temperature technology first made it possible 15 years ago but it was not achieved until the morning of June 5.



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Thinking Green

The vaunted benefits of the rich consumer society are choice, variety and personal freedom. Now drinking juice in tetrapack and moving from air-conditioned offices to air-conditioned cars in the summer is becoming the life-style of the neo-rich.

What we forget is the things we cannot do, the things we no longer have because of the choices and demands of our consumer society.

We cannot see the stars as our ancestors did, or drink from a mountain stream. We cannot buy really tasty ears of corn to eat with sweet local butter, because all the farmers have switched to a bland variety that keeps its sweetness for city markets. Children cannot play on the streets in safety, or walk to school by themselves.

The solution has to start with an analysis of the reasons for rampant consumerism. The simple reason is that companies and nations can only get rich when people buy more of what they make. But on a personal level, the influences that increase consumerism around the world are mass media and advertising, the speed of technological innovation, and the social insecurity that results from broken community ties.

Faced with this realization, there is a growing interest in old-fashioned thrift. "Use it up, wear it out, make it do, or do without" is an old New England saying which was a comfort to many people scaling back their lives in the recession of the early 1990s.

Mahatma Gandhi said "there is enough for

USE IT UP
WEAR IT OUT
MAKE IT DO OR
DO WITHOUT

everyone's need but not for everyone's greed this world". Some people are simplifying their lives, choosing simpler homes, simpler meals, simpler clothes, and simpler holidays. This goes with a reconsideration of the things we value, and thought about the limits to our time and energy. The frantic pace of urban life is leading many people, especially parents of young children, to choose to move to smaller towns where they can lead a more balanced life, with more time for family, friends, and themselves.

Beyond this, environmental and religious organizations are encouraging members to think of 'living simply' that others may simply live.

Many people are rethinking consumerist values. Most parents want their children to grow up with a sense of values that depends on something other than brand names, and they are frightened by what they see in their culture.

Since our primary satisfactions in life come from relationships with families and friends, the more time we have to enjoy these relationships, and the more our lives are structured to foster stable human connections, the less likely we are to compulsively buy, or to buy for status.

Building a sense of community, whether in a neighbourhood, an apartment building or a block, reduces consumption. People consume less when their lives are very much individualized, where tools and equipment are shared, where clothes are not passed to young children in other families, where entertainment has to be purchased.

There is a growing awareness, especially in the United States and every urban center where the problem is most intense, that there need to be restrictions on advertising. For instance, in Washington DC, the Centre for the Study of Commercialism has promoted, with the help of religious leaders, a coalition to protest the commercialization of Christmas. The feminist magazine *Ms* was relaunched in 1990 as *Ms. Women's Business* with astonishing success.

Exchange and trade are not going to disappear, and no one will make a living if consumers are not willing to buy their goods and services. But in order to preserve strong communities, especially in rural areas, residents need to keep money in the local economy in order to encourage a sufficient diversity of services. This is green consumerism, making sure that the money we spend supports the business we want and the people who run them.

There is a middle ground between the wealth of a few countries and the poverty of others.

Ever since human beings began to live in settlements they have acquired and stored material goods - food, first and foremost, and the other things too. But the acquisition and storage (not to mention the insuring, guar-

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repair and replacement) of material goods need not overwhelm all other human pursuits.

It seems likely that the environmental pressures that are provoking such debate about worldwide consumption patterns will lead to a closer look at the conflict between human and corporate aspirations, and at the factors that make for healthy, happy, and sustainable human societies.

'Pulse of the doctor'

There is a word of warning against white-coat hypertension.

What is white-coat hypertension? Some 250 years ago, a German physician called it "the pulse of the doctor". It refers to the fact that a person's pulse rate and blood pressure are often higher when measured at a doctor's office or clinic than at home, work or play. As a result, some patients may be mistakenly found to be hypertensive and may be needlessly given drugs to bring their pressure down, two new studies suggest.

However, there are strong disagreements about interpreting and treating it that could have a significant impact on medical costs and a lasting influence on patients' self-image, employability and insurability, as well as their risks of suffering heart attacks, kidney disease or strokes.

Treating all patients on the basis of office blood pressure readings is not safe, it is argued. Some clinicians familiar with the white-coat effect maintain that certain patients should first be fitted with ambulatory blood pressure monitors that automatically record their blood pressure every 15 minutes or so throughout the day and night.

Ambulatory device can give useful information about blood pressure even while asleep or exercising. But this is too expensive, point out some other experts.

One study showed that the white-coat effect was especially pronounced in people over 60. The study was conducted by researchers in Copenhagen who tested the blood pressures of 352 healthy people aged 20 to 79 in the office and with ambulatory monitors as they went about their normal routines.

The researchers, who were headed by Dr. Niels Wiinberg, came to the conclusion that the higher blood pressures typically found in older people may in part result from an exaggerated white-coat effect.

*A similar conclusion was reached in early 1995 by Italian researchers who published a study of office and home blood pressure recordings in 1,511 men and women. Dr. Michael

A. Weber, an editor of a hypertension journal, said the Italian and Danish findings are strongly for the usefulness of ambulatory monitoring, which can cost from \$100 to \$350.

"There are too many quick and casual diagnoses of hypertension being made", Dr. Weber said in an interview. "This is a major diagnosis and it is often the first time patients are brought face to face with a cardiovascular condition, will influence how they think of themselves, how others think of them, for example, getting a job or insurance."

Dr. Weber said, "Once treatment with blood pressure-lowering medication is started, it is never stopped. Therefore it is a tremendously important diagnosis to get right in the first place."

Furthermore, he said, ambulatory monitoring can encourage patients to stick with treatment if they really need it.

Among those who are not enthusiastic about ambulatory monitoring is Dr. Marvin Moser, another hypertension specialist who said the technique was a good way to drive up health care costs without any clear-cut evidence of benefits. Dr. Moser, who serves on a commission that has resisted recommending ambulatory monitoring as a routine practice, insists that most people with consistently elevated blood pressure in a clinical setting have underlying problems that increase their risk of cardiovascular complications. Therefore, he says, treatment can reasonably be based on office blood pressure measurements.

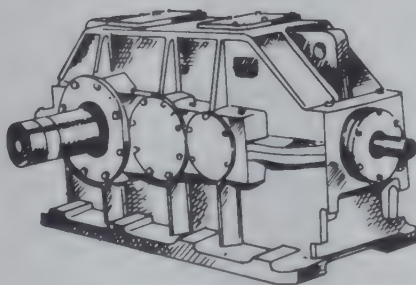
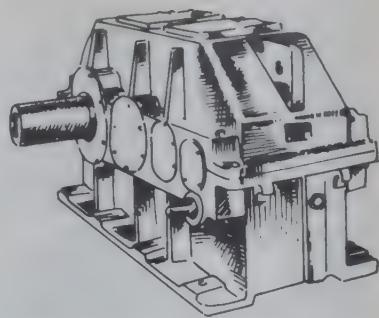
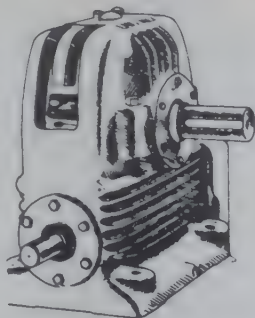
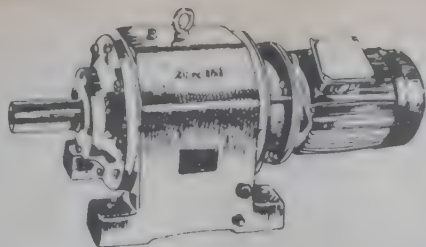
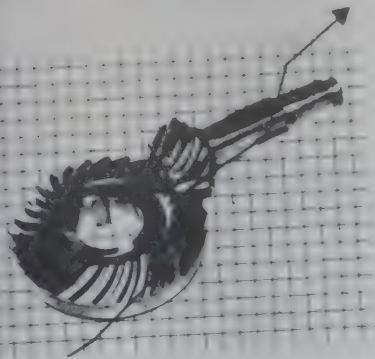
Timekeeping

Indians are known for their poor timekeeping. For most time means keeping their watch tuned to the radio. Value of time can hardly be emphasised. But to say that it is highly advanced field of science and that it has a rich international cooperation will amuse many.

The "pip" sound heard before the news begins on the All India Radio is familiar to millions of listeners all over the country. But very few realise that it signifies standard time and that it is a time broadcast. On television, however, standard time broadcast can be seen visually. Both the time broadcasts are nothing but Indian Standard Time (IST), maintained and broadcast by the Delhi-based National Physical Laboratory (NPL). Radio and television are two major users of IST.

Timekeeping is a highly specialised activity requiring international cooperation and advanced techniques are used to keep time and disseminate it to national bodies. The Bureau International des Poids et Mesures (BIPM), the international

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that maintains the GMT, transmits time and frequency signals to various centres like NPL, who keep their clocks synchronised with those of BIPM.

The task of the national bodies like NPL is to make available the standard time to all interested users. There is no use of time keeping unless we are able to make it available to all those who need it, say scientists at the standard division of NPL.

The importance of accurate and precise means of disseminating time and frequency signals has grown considerably over the past few years. This is mainly due to the increase in the number of demanding users in sectors like communication, navigation, space tracking, geophysics and radio astronomy.

Most techniques of time and frequency dissemination involves some kind of radio transmission, either in the form of a dedicated broadcast or user signals intended for established systems like navigation or television.

Till recently, NPL was using a ground-based system using sub-ionospheric propagation of radio waves. In fact, ground based techniques have been in use for more than three decades all over the world. But these systems had some inherent drawbacks, due to which high precision users like space tracking stations and radio astronomy observatories often faced problems.

The atmospheric radio noise is high in bands used for time and frequency transmission. Secondly, the allowed band-widths for time transmission are rather narrow. Also, there is always an amount of uncertainty due to solar flares and geomagnetic storms which result in blackouts.

Lifeline Express

The world's first Hospital-On-Wheels, the Lifeline Express is committed to taking medical care for physical disabilities to Indian villages. Fully equipped with the necessary facilities, the train travels to remote areas, where it stays for a few days and then sets up, with the help of a local sponsor, a 'Lifeline Health Home' for the long-term follow-up of its patients. The Chairman of the Board of Trustees of Impact India Foundation A. H. Tobaccowala, the organisation which started the project, says "We take the best surgical treatment to the remote areas and create an awareness of preventable diseases. We are part of the worldwide movement for disability prevention."

To overcome these difficulties, scientists have developed a satellite-based system time and frequency broadcast. India is second country in the world to use a geostationary satellite for time transmission. Most of difficulties have been overcome by using satellites, which are generally at orbits higher than the ionosphere, typically a few thousand kilometres above the earth. This enables having a large ground coverage also. The atmospheric noise in the frequencies used for transmission are such that the noise level is almost zero.

Satellite time transmission is of two types - one-way and two-way. In one-way transmission, the user simply receives the time signal directly from the satellite. The signal may originate from an atomic clock placed on the satellite or a relay from a ground-based clock through the satellite transponder. In the case of two-way transmission, there are two ground-based stations each simultaneously transmitting to and receiving from the other the time signals via the satellite. The two-way measurement virtually eliminates all the propagation delays. But the two-way method has limited number of users like national timekeeping laboratories, required to compare of transfer time at accuracy levels not available from other methods.

The NPL's satellite transmission system is located at the INSAT earth station located at Sikandarabad in Uttar Pradesh. The cesium clock at the station is kept synchronised with the "master clock" kept in the standards laboratory of NPL. The station also has a time code generator which stores hourly values of satellite coordinates dumped into it by a PC which performs all the computations. The receiving system consists of a front-end converter and decoder, which displays time of the day and satellite coordinates.

According to Dr. A Sengupta of the standards division of NPL, "The main advantages of satellite-based time transmission are its uniform coverage of the entire sub-continent, high reliability, round the clock availability, completely automatic receiver and decoder for real-time time and frequency transfer and a relatively low receiver cost for the high level of accuracy".

The receiver system technology developed by the NPL group has been transferred to two firms for commercial exploitation. The receiver system, including the dish antenna and the time generator costs about Rs. three lakh. With the availability of this system commercially, it will be possible for anybody interested to get IST on a regular basis.

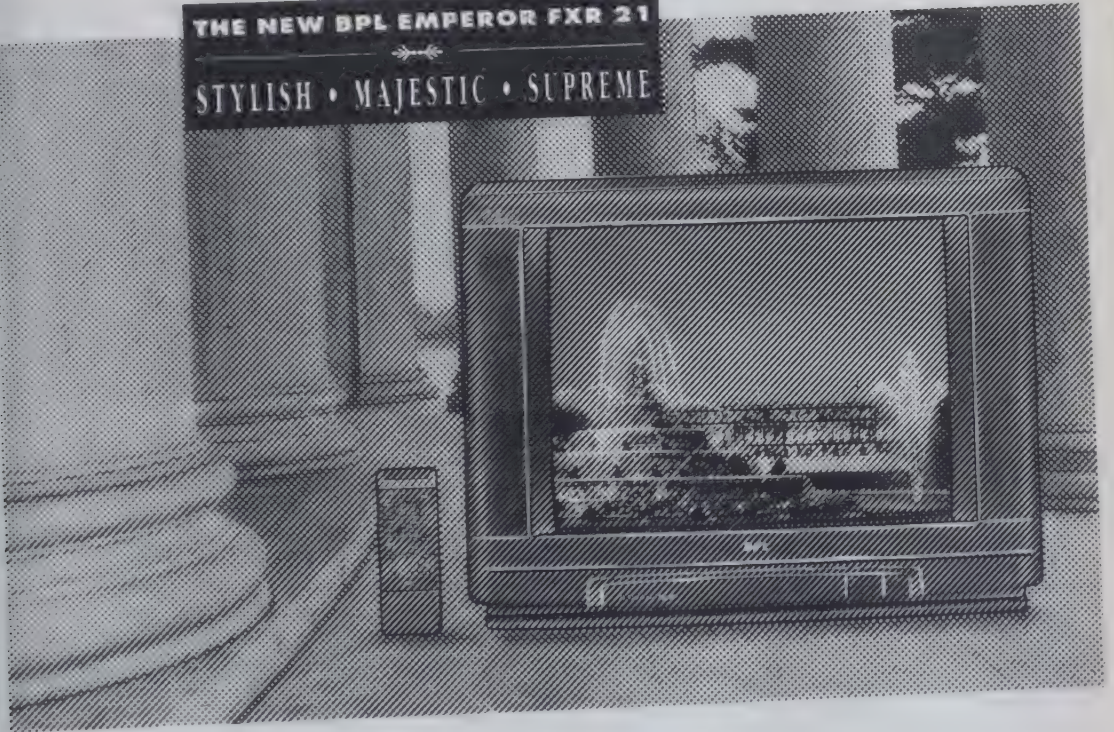
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television stations and radio astronomy labs, the satellite-based time dissemination system could find a wide variety of users. These could include railway stations, airports, important public places, and even state electricity boards (for power network synchronisation). There could be many more uses which have yet to be explored.

X-ray is 100

The hundred year old radiographic technique, the popular X-ray photography, is in for change, at last. Soon it will be possible to take sharp and clear pictures of soft internal organs as of bony skeletons. Presently, however, organs like brain, intestine, or heart cannot be x-ray photographed without the assistance from a barium meal or an iodine drink. The turnaround is because of a discovery by a team of Australian physicists who reported that X-ray can also be phased-contrasted, albeit in a devious and clever way.

Taking clear pictures of soft organs with hard X-rays is difficult, because these powerful rays pass through most body organs except the bony tissues. If only the soft tissues could absorb a

part of X-rays passing through them, it could have given a better picture with better contrast. There was no way till now but to add to tissues a heavy barium or iodine which could absorb X-rays and provide the much needed contrast.

The discovery of Dr. Tony Wilkins and his team may help surmount this problem. Dr. Wilkins and his team have discovered that it is possible to polarize X-rays using a cleverly crafted silicon crystal.

Dr. Wilkins using the technique also known as phase-contrast microscope produced good contrast images as the two differently timed beams of light clashed with each other accentuating the differences. The technique comes good in viewing living specimens of microorganisms under microscope. No such easy way out of the problem was possible with hard X-rays as there was no lens available that could slow down the motion of the powerful rays.

Nevertheless, Wilkins's team used another phenomenon - a shift in the direction of motion of X-rays passing through a crystal - to get a good contrast picture. Their strategy is deceptively simple. First they crafted a silicon crystal - a large block of silicon cut to perfection - in such a manner that it lets through only those X-ray waves which are oriented in a particular direction. In other words, a plane wave front is created.

A second crystal, similarly crafted, diffracts or bounces or reflects these waves. But it does so to only those waves that come to it from a particular angle and directs the reflected beam to a X-ray film.

Wilkins's team has taken a series of pictures of different objects by cleverly changing the position of the second crystal. However, the results are encouraging. For, even a mosquito or an insect without any bony elements, has been clearly photographed using the technique. The team could also visualise the thin, microscopic veins that are present in a leaf. Besides, the new technique delivers less X-rays to the body - an aspect that is often overlooked but is getting serious people are now exposed to more X-rays than ever before.

Wilkins team has given a safer alternative. However, there is a catch. The technique is yet to step out of laboratory. But the promise is there and the team's efforts in due time will develop into a safer radiographic tool.

N-level check

The inadvertent radiation leaks from nuclear power station like what happened in Tarapur can go unnoticed for long. The researchers from Mangalore University have identified an epiphytic (hanging on trees) orchid plant prevalent in Indian jungles for monitoring radiation levels in the vicinity of atomic power plant.

The orchid, *Cymbidium aloifolium*, was identified by a team of scientists from the university department of physics when it studied the accumulation of radionuclides prominent in plant species of tropical forests in the Western Ghats near Kaiga, where two units of the 235 mw nuclear power plant are being built. The investigations were conducted to identify few plants to be used as natural and artificial indicators of radionuclide fallout. The results of the study are significant as any inadvertent leakage of radioactivity from nuclear power plants bioindicators would facilitate monitoring the environment during normal operation of the nuclear power plants and in emergency situations connected with nuclear incidents.

Genetic jigsaw solved

J Craig Venter, a scientist of National Institute of Health, USA, has now deciphered the entire DNA sequence of a free-living organism. The



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sequence is a chain of 1,830,121 DNA bases, the chemical units of the genetic code which constitute the entire genetic database of the bacterium known as *Hemophilus influenzae*. "This is an incredible moment in history," raved Fredrick R Blattner of the University of Wisconsin. "This is what geneticists have been dreaming for a long time."

Every human cell contains DNA - the chemical basis of life - 97% of which is regarded as "junk", while 3% of it, comprising 60,000-80,000 genes, is worthwhile. These hold the essence of life. When decoded, they reveal tales of sickness and health, life and death.

Every living cell contains 2 nucleic acids - DNA (deoxyribonucleic acid) and RNA (ribonucleic acid). DNA is present in the nucleus, while RNA is present outside it, in the cytoplasm. RNA is widely distributed and exists in 3 forms - messenger (m)-RNA (which carries messages from the DNA to the site of protein synthesis), transfer (t)-RNA (which identifies the required amino acid and carries it to the protein assembly line) and ribosomal (r)-RNA (the RNA present in ribosomes - the site of protein synthesis).

Each DNA has a corresponding RNA. The DNA code is read and the message is carried to the

site of protein synthesis via the m-RNA. The m-RNA then identifies the required amino acid and carries it to the protein assembly line. This process continues till the complete protein is synthesised.

Venter began his work when he discovered a paper by a geneticist, Leroy E Hood, in which DNA is sequenced by robots, not manually. He obtained one of the first sequencing machines from Applied Biosystems Inc., California, to further accelerate the process.

Venter observed that the cells know exactly which part of the DNA comprises genes. So he copied the genes into the m-RNA. He took the m-RNA and then made a DNA copy (c-DNA) complementary to the m-RNA. Thereby, only the genes were simulated. Venter produced thousands of such c-DNA pieces and then deciphered them by reading them on the machine. He could read them at rapid fire speed as he developed special software programmes to fit together the "enormous jigsaw puzzle".

Until now, geneticists discovered genes by observing what function is impaired when a mutation, or change of bases, is made in a bacterium's DNA. With the genes fully catalogued, they can start with a gene and search for its function. Soon they will

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able to tell by examining an individual's genes whether she or he is likely to develop heart disease or be struck by breast cancer at any point of time in her or his life. 'The impact of this genetic information may become the mainstay of drug companies in the future,' says Jerry Slinghtom, a scientist working in the R&D wing of the front running biotech firm Upjohn Co. And pharmaceutical companies realised this much before Venter had stumbled upon the discovery, when the scientific community was still scoffing at his seemingly unrealistic Human Genome Project. A handful of them, led by one other than the drug giant SmithKline Beecham, became firm Venter-believers when the scientist walked out of the NIH in a huff as his proposed project failed to acquire grants. The scientists disapproved of his "short-cut approach". But Venter wanted to move fast and he found a kindred soul in his colleague, William A Haseltine. Together, they formed an alliance, Venter heads the non-profit Institute for Genomic Research in Gaithersburg, Maryland, while Haseltine is the chief executive officer of the Human Genome Sciences Inc. Rockville, Maryland, which has the right to commercialise the Institute's findings. The 2 "Gene Kings" were ardently courted by drug companies. SmithKline Beecham, Hoffmann-La Roche Inc, Upjohn and Pfizer Inc and Merck & CO invested megabucks in the bid to cash in on what they were convinced was a big bonanza, eventually to come up with the most lucrative corporate jackpot the world has now to offer.

Be thin and live long

It pays to be thin. Even slight obesity can be harmful. Evidence is mounting, writes Jane E. Brody from New York.

A major new study suggests that even a moderate gain, of 22 pounds (10 kilograms) or more above a person's weight at age 18, incurs greater risk of earlier death.

Though the risks of being seriously overweight are well known, there is still medical controversy as to whether moderate weight gain poses a risk to health.

The study, conducted among more than 15,000 women nurses in the United States who were followed for 16 years, sought to clarify the question by excluding people who were lean because of smoking or pre-existing diseases.

An earlier study of the same group of women, reported in February, 1995 concluded that

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derate weight gain of even 11 to 18 pounds in adult life, resulted in a higher risk of heart disease specifically.

The new analysis, published in *New England Journal of Medicine*, has found that a surprising one-third of cancer deaths as well as more than half of cardiovascular deaths were due to excess weight, according to the study's director, Dr. John E. Manson.

Excess weight was linked to deaths from cancers of the colon, breast and endometrium, said Dr. Manson, an endocrinologist at Brigham and Women's Hospital and Harvard Medical School in Boston. She suggested that the acids formed from fats in the diet and hormones produced in body fat raise the risk of developing these cancers.

The study is particularly relevant for Americans because a third of the adult population is overweight - defined as 20 percent or more above desirable levels - and the national girth is growing. Over the past 15 years, the mean body weight of American adults has increased by 7.9 pounds.

The new study confirms the risks of being seriously overweight. Overall, in this group of women, who were healthy and 30 to 55 years old when the study began in 1976, obesity - defined as being 30 percent or more above desirable weight - accounted for more than half the 4,726 deaths that occurred during the study period, Dr. Manson said in an interview.

Women who were obese were four times as likely to die of heart disease and twice as likely to die of cancer as were women whose weights were below average for their age. Among women who had never smoked, even those who were slightly or moderately overweight had death rates higher than did the leanest women, who weighed at least 15 percent less than the average American woman of the same height.

For example, for women 5 feet 5 inches tall, weighing from 120 to 149 pounds increased the risk of early death by 20 percent above that for women weighing less than 120 pounds. At a weight of 161 to 175 pounds, the risk rose by 60 percent.

For all women categorized as obese, the chances of an early death were doubled, a statistic that is expected to get worse as the men age and heart disease overtakes cancer as their leading cause of death.

Although women and men often show minor differences in health characteristics, other studies suggest that the new findings in nurses probably apply to men as well.

In projecting her results to the U.S. population as a whole, Dr. Manson estimated that "about 300,000 deaths a year are attributable to overweight, second only to cigarette smoking, which causes 400,000 deaths a year."

lation as a whole, Dr. Manson estimated that "about 300,000 deaths a year are attributable to overweight, second only to cigarette smoking, which causes 400,000 deaths a year."



Leap in Women Smokers' Cancer Deaths

The rate of deaths from lung cancer among women smokers increased sixfold from the 1960s to the 1980s, according to a new study. The rate rose from 26 to 155 per 100,000; for men smokers it nearly doubled from 187 to 341 per 100,000, said Michael Thun of the American Cancer Society.

Thun and fellow researchers from the Emory University School of Public Health compared the findings of two large studies sponsored by the cancer society, one from 1959 to 1965 and another from 1982 to 1988. The increases occurred despite the introduction of lower-tar cigarettes and filters.

Researchers in England, meanwhile, report that better use of current cancer drugs could improve survival rates. Professor Hilary Calvert told the British Association for the Advancement of Science that advances in tailoring drug doses to patients, in helping patients recover after chemotherapy - for example by stimulating bone marrow production - and in treating patients earlier were improving survival rates.

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Are You Overweight?

Do you weigh more than what's good for you? It depends on your body-mass index.

A study in the New England Journal of Medicine confirms that thinner is usually better. But figuring out where you stand requires calculating a single number so that those with different heights can be compared.

This number, called the body-mass index, is your weight in kilograms divided by the square of your height in meters.

Here's how you figure it out: First, multiply your weight in pounds by .45 to get kilograms. Next convert your height to inches. Multiply this number by .0254 to get meters. Multiply this number by itself. Then divide this into your weight in kilograms.

Your answer will probably be a number in the 20s or low 30s. It is your body-mass index.

The study found that middle-aged women whose body-mass indexes were below 19 had the lowest risk of death.

For an index between 19 and 24.9, the risk of death was 20 % higher. Between 25 and 26.9, it was 30 % higher. Between 27 and 28.9, it was 60 % higher. Over 29, it was double.

The Internet

Do you want to drive down the information highway? Care to join a chat group on Hubble telescope, Chechnian rebellion, or deforestation in the Amazon rain forest? Everything from data on the population growth rate of China to the latest issue of *Time* magazine will be at your fingertips. The computer buffs across India celebrated when in a surprise development that one not a day too soon, the Government cleared the path for computer users to freely connect to the world's largest computer-based information network—the Internet.

For Indians who had been waiting to cruise the infobahn, the global cyber village is now just a personal computer and a modem away, so long as they are willing to pay Rs.5,000. Thanks to the Videsh Sanchar Nigam Limited's Gateway to Internet Access Service, which has set up a satellite link with the US-based telecom giant AT&T International. Till now any educational institution could log onto the network under a department of Education-run scheme. But now, anyone with basic hardware and software can connect and reach out to the world. VSNL has fixed a dual tariff based on the type of users—per year Rs.500 for students or 250 hours of use, Rs.1,000 for individuals and going right up to Rs.2,000 for commercial users. As of now, the service rests on four central computers sta-

tioned in the four metros, while Pune and Bangalore await their servers. Users in respective cities can dial the VSNL access numbers through their computers hooked to a modem and walk into cyberspace.

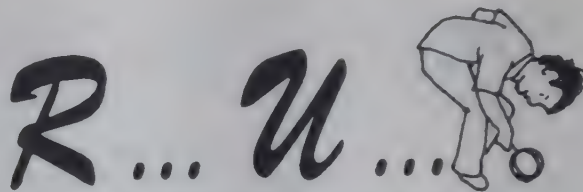
The largest world of on-line information is that of the Internet, the international computer network that may one day rival the global phone system in its scope and common design. Wholly owned or controlled by no one, it is a collection of nearly 1.5 million host systems—large computers on which many users, who may connect to them by telephone, have accounts—that communicate with each other via common technical standards.

The Internet is most commonly used for sending e-mail, electronic dispatches delivered often in minutes at a cost less than a postage stamp. Cheaper, faster and more dependable than long distance telephone or the postal service. E-mail has become the standard means by which budget-minded activists keep in touch with each other in foreign lands.

The Internet originated in 1969 by the US military as a doomsday communications system impervious to nuclear war—doing defence-related research across the United States. By the late 1980s, it had become an important people's computer network for such academic researchers—from English professors to physicists—and reached outside academic institutions and the border of the United States. The Internet has 40 million users in more than 50 countries. It is continuing to expand rapidly, with thousands of systems adopting Internet standards every month. Both the number of host computers and the volume of information flowing through the system are estimated to be doubling every five months.

Within or linked to the Internet are thousands of smaller networks, such as Peacenet (a non-profit online service in San Francisco that links 33,000 users in 133 countries) whose users often have limited access to Internet. Internet users can now even tap into the smaller networks' specialised resource. The resources available on the Internet—which include the catalogs of Library of Congress and many specialised databases—are growing as rapidly as the system itself. On the Internet, one can find the Bill of Rights—or how to make a bomb in the Anarchist's Cookbook. At last count, the Internet was carrying 135 electronically published journals. In addition, there are dozens of on going Internet conferences such as on environment, and development-related issues. And while the giant Internet is less specialised than APC, it too offers access to myriad sources valuable to environmentalists, such as databases on energy use and the catalogs of environmental libraries.

The amount and variety of information



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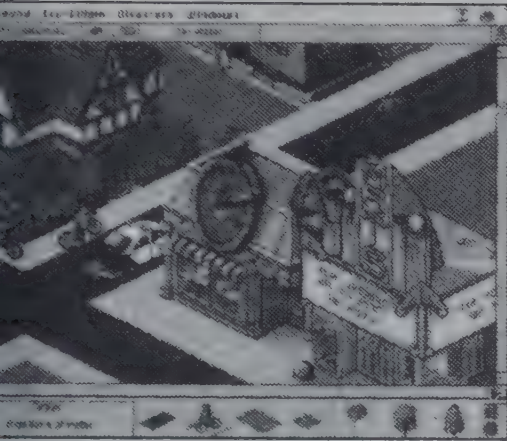
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able on Internet can be bewildering. How many host computers, including Econet/net, now offer special programs that allow to search thousands of systems for information on particular topics—without knowledge special commands or network addresses. Actually anybody can get on the Internet and hundreds around the world. Whenever change occurs in the way we handle knowledge, some individuals are left behind, excluded. The new technology makes the people who do master it suddenly aware of domains of knowledge still to be explored. Internet is a completely new world in which we seem to know very little. We do not know what it is and that different possibilities of use are being discovered literally every day. But what will be the effects of such a radical change in the way we handle information? Internet is a synthesis of several innovative technologies. Internet is not only fostering the growth of knowledge but at the same time creating unprecedented forms of ignorance. This is not uncommon in the history of technology.

Not only has Internet already enlarged our world but it has also produced new forms of social isolation and discrimination, it is also transforming our lives. This global network is constructing an electronic village and overhauling sectors of activity like communication, writing, publishing, advertising, selling, banking, teaching and learning. Internet has transformed the physical city of a modern society into the "disembodied" city of a post-modern cyber community, as some hackers like to say. The jargon might be extravagant, but the changes are almost total. Publicity has assumed an international scale, while privacy takes on an electronic dimension through our e-mail conversations. Social manners are evaluated on the basis of a "netiquette". The way in which personal information can be created and stored in data-

bases, and then accessed and used through the network has enabled voicing our concerns about human rights violation etc., at the shortest possible time around the world through the network.

It has the potential danger of electronic crimes, electronic pornography to viruses, from illegal reproduction of software to the mishandling of electronic systems and illicit intrusion into them, from copyright infringement to electronic plagiarism.

One of the most pressing concerns is that knowledge may become fragmented as it is decentralized. Internet has developed in a chaotic way. Today it suffers from a regrettable lack of uniformity, strategic planning and global organization. While vaster regions of the human encyclopaedia are being entrusted to the global network, Internet is being pushed into an anarchic state, at the risk that in a few decades organized knowledge will be lost in a labyrinth of millions of virtual repositories, and information will not be as easy to find as a needle in a haystack.

It is important that some kind of international bureau should be created for the management of Internet, a sort of digital Big Brother. National organisms should not be allowed to take control of the new electronic frontier. Internet should be like a new country, with a growing population of millions of well educated citizens.

New Treatment for Multiple Sclerosis

A team of Greek and German doctors say they have come up with a revolutionary treatment for multiple sclerosis, with very encouraging preliminary tests.

Dr. Dimitris Koundouris, a neurology professor at Greece's Patras University, and Dr. Hans Kornhuber, the director of Germany's Ulm University Hospital, said their method was based on a combination of the cancer drug mitoxandron and immunoglobins which suppress production of white blood cells.

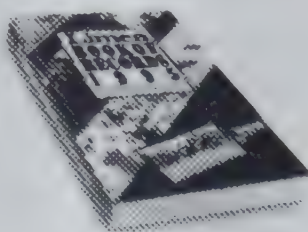
They tested the treatment for 18 months on 320 people who had seen no improvement with traditional drugs such as interferon and cortisone. "The results were very impressive," Dr. Koundouris said. "Fifty-eight percent of the patients showed a spectacular improvement. 40 percent had some improvement and the rest showed no improvement."

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As such it does not need a highway patrol, rather an "infostructure". This would ensure the reliability and integrity of the encyclopaedia; provide constant and discriminatory access to it, thus guarantee universal right to information. It could be to deliver a continually updated map to the use of thought; expand the numbers of primary, secondary and derivative resources available online, especially those that won't support commercial operators. This structure would support and improve the methods and whereby the encyclopaedia is converted into the digital domain, where networked information is stored, accessed, retrieved and marketed.

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Save Whales

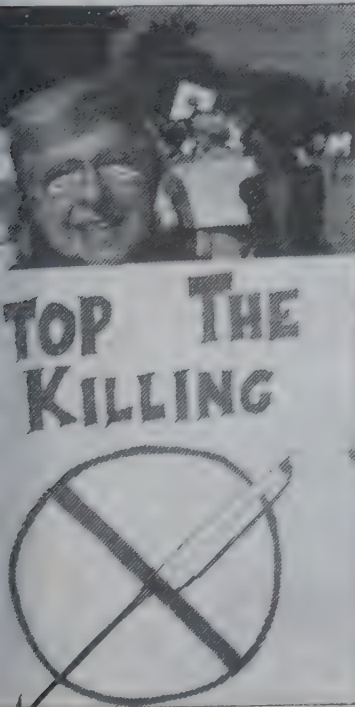
The International Whaling Commission (IWC) established a vast circumpolar whale sanctuary in Antarctica in 1995 to effectively end any possibility of the resumption of large-scale whaling anywhere in the world. The oceans that were prohibited to the whalers include the Indian Ocean, which has been an IWC sanctuary since 1979, and the Southern Ocean of 40° S, except for area south of South

America, where the sanctuary boundary is at 60° S.

Even if the current indefinite IWC moratorium on all commercial whaling worldwide were ever to be lifted, all the eight southern hemisphere great whale species would remain protected. This includes the southern hemisphere minke whale, the last of the great whales to remain anywhere near their original number. All the rest have been so drastically depleted by the whaling industry in the past 80 years that the biomass of baleen whales feeding each summer in the Southern Ocean is now estimated at less than 6% of its pre-whaling level.

Japan kills 300 whales a year in the Antarctica for scientific research purposes. The sanctuary can not prevent whaling for scientific purposes, but with no prospect of full-scale commercial whaling ever resuming there, it is unlikely that the research will receive its government subsidy for long. The question of policing the sanctuary remains. However, since, any large amounts of whale meat appearing in the markets would by definition be illegal, if any pirate whaling started in the sanctuary it should be easily detected.

In practice, the sanctuary is the only way to ensure the survival of the last abundant whale species, and the gradual recovery of the natural equilibrium of the whole Southern Ocean ecosystem. It is a highly significant victory for conservation.



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Computer: A New Life

By the year 2005 over 150 million computers will be dumped in landfill sites worldwide, according to estimates by the Carnegie-Mellon University in the United States. The rate of technological development has been so rapid in recent years that equipment is often discarded while still in full working order, simply because it is unable to support the latest generation of software.

This built-in obsolescence leads to an average replacement period in Western countries of only three years, following which equipment is usually buried or incinerated, squandering resources and dispersing a variety of substances, including the toxic metals mercury and cadmium, into the environment.

Concern is such that the European Commission has targeted electronic waste as a 'Priority Waste Stream', establishing a working group which will collate information on the current

scale of the problem. Recommendations on reclamation strategies and manufacturing processes will be followed by European legislation.

From a purely financial point of view the waste of resources is staggering, with one study, completed by the UK-based Centre for Exploitation of Science & Technology, estimating that in that country alone around 6 million items of electronic equipment with a reclaimed value of £50 million (\$75 million) is buried each year. Material resources lost include high quality plastics, tin, copper and aluminium in addition to precious metals such as nickel, palladium, silver and even gold.

The situation is all the more wasteful when viewed in the context of developing countries attempting to get on to the first rung of technological development. While the latest technology may be affordable to governments, the costs can prove prohibitive to indigenous businesses and industry who may lack both the finance and the training support.

One company which is linking the disposal problems of the affluent West with the requirement for entry level technology in developing countries is R Frazier Ltd. based at Dumfries in Scotland. Run by a former IBM director, Liam McKenna, the company specializes in reclaiming and re-selling redundant computer and electronic equipment. By sharing the profits with the original suppliers, the company allows businesses to turn a disposal cost into an asset.

Mr. McKenna explains: "We collect redundant equipment from a variety of sources, then repair and rebuild complete systems, taking a processing chip from one, a monitor from another and so on, creating a working system from several unsaleable ones. "Even when systems cannot be rebuilt components are removed and exported, where they are stimulating the development of home-based computer assembly lines. When equipment does not contain working components they are still not discarded; metal and plastics are reclaimed, resulting in less than 5 per cent of the equipment received being consigned to landfill.



Dioxin Dangerous!

In the early part of 20th century's Chemical Age, companies such as Union Carbide and others trumpeted the miraculous powers of chemicals through various advertisements. In fact, chemicals did bring miracles, from antibiotics, penicillin, and other medical advances. Our forefathers could never have imagined about processed food, pesticides, contact lenses, contraceptives, preservatives, synthetic cloths, dry cleaning and so on. In all scientists have

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exposure to dioxin suppresses the immune response system and reproductive functions. Dioxin also appears to affect behaviour and learning ability, which suggests that it is neurotoxic. When tried on rhesus monkeys exposed to low and chronic dose of dioxin their performance diminished while baby rhesus monkey failed to differentiate colours, location, and shape.

Dioxin, like lead, is most damaging to young animals, especially those that are exposed while in the uterus. It interferes by amplifying or diminishing the effect of natural sexual hormones at a critical point during pregnancy. Depending on whether it produces estrogen or testosterone, the fetus develops 'male' or 'female' features. Experiments on male rats exposed to very low-level of dioxin at University of Wisconsin, had smaller reproductive organs, smaller sperm-count and even exhibited feminine sexual behaviour.

Most of us are involuntary research subjects, exposed to not just one, but a wide variety of chemicals every day, some of which like dioxin remain in our body for more than a decade.

The shortage of studies on individual chemicals, or on the synergistic effects of several chemicals, has prompted some researchers to call for a more radical approach to the prob-

lem. Scientists like Tom Webster of City University of New York and others are arguing for attacking the problem at the source, reducing the levels of chemicals allowed into the environment in the first place, a strategy requiring redesigning of process or product that produce or use chemicals. The chemicals they are targeting include benzene, chlorine, dioxin, formaldehyde, and lead.

In the public interest, few questions have been raised. Is it fair to continue making people the unwitting guinea pigs in the industrial quest for better, faster manufacturing and products? Shouldn't the burden of safety squarely put on the industry?

Chemicals now occupy such a comfortable niche in our lives that we fail to consider the dual nature. The time may have come to hold these life-changing substances to a far stricter standard and consider them guilty until proven harmless.

CFC Alternative

Over the longer term, phasing out the use and emissions of CFCs will require the development of chemical substitutes that do not harm the ozone layer. There are other culprits li-

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s, which contain bromide, are members of a destroying team. Although there are no good substitutes for halons, their emissions appear relatively easy to curtail. Because they are nontoxic, their use, particularly, in fire fighting, is limited—only when emergency use is warranted. At present, halon flooding systems—used for enclosed areas with valuable contents, such as computer rooms, telephone exchanges, museums, bank vaults are tested by first installed by releasing all the gas in the system. Discharge testing now contributes to lower emissions than fire fighting. The challenge is to find alternatives that perform the same function for a reasonable cost, do not require major equipment modifications, are nontoxic to workers and consumers and are environmentally benign.

This is a difficult task, but some advances appear promising. Petroform, a small company in Fernandina Beach, Florida, has developed a substitute solvent called BioAct EC-7 from terpenes found in citrus fruit rinds. The chemical is biodegradable, nontoxic and noncorrosive. BioAct EC-7 has been tested by EPA (which used roughly 1,500 tons of CFC-113 at three of its plants and found to be cost effective and economically competitive, even when factoring in the cost of replacing machinery. An EPA analysis estimates that the new compound could substitute for 30%—50% of total CFC-113 use in the US electronics industry.

Du Pont and Imperial Chemical Industries are among the world's two largest CFC producers, but are convinced that the replacement chemicals will be chlorine-free HFC-134a. Du Pont has invested heavily in alternatives. A \$25 million plant in Corpus Christi, Texas, will be the company's fourth largest facility for producing HFC-134a, and the seventh in the company's overall program to develop CFC alternatives. Many of the major chemical manufacturers are hoping to find new foam blowing agents in the HCFC family of compounds—whose members—22, 123, 141b and 142b—have an added hydrogen atom that makes their ozone depleting potential only 5% that of the chemicals they would replace. Their cost, on the other hand, would be three to five times greater. One major delay associated with commercialization of new chemicals is the need to pass extensive toxicity testing. To speed up the process, 14 nations have pooled millions of dollars and efforts in order to test them jointly. HC-22 has already passed; HCFC-123 and HCFC-134a has been undergoing various tests. Finally, new product designs may eliminate the need for CFCs and substitute

Pig Hearts for Humans

A British firm, claiming a major breakthrough in transplanting animal organs into humans, says it hopes to start giving people the hearts of pigs within a year.

The Cambridge-based company Imutran, which in 1992 bred the first "transgenic" pig bearing a heart with a human gene, said that its advance in technology could make the worldwide shortage of heart, kidney and lung transplant donors a thing of the past.

Imutran has bred a herd of pigs whose hearts have been manipulated with a human gene. Its experiments of monkeys have shown that primates can be tricked into accepting a pig organ without almost instant rejection.

Imutran said it had applied for the necessary approval from medical ethical bodies governing genetic technology around the world and was "moving with alacrity" through the procedures. It all goes well, it plans to start clinical trials transplanting transgenic pig hearts into humans on four or five patients at Cambridge's Papworth hospital in early 1996.

chemicals. For example, in automobiles, side vent windows, window glazings which reduce solar absorption, and new solar ventilation systems can curb heat and eliminate the need for air conditioners.

Helium-cooled refrigerators, long used for space and military purposes, have been adapted for civilian use in trucks, and homes. Cryodynamics, a New Jersey-based company is already producing such refrigerators in Shanghai, China. They are very energy efficient consuming less than half the energy of conventional appliances.

Rigid-form insulation in refrigerators and freezers is soon likely to be replaced by vacuum insulation, the type used in thermos bottles. Vacuum panels take up less space than foams and make appliances more energy efficient. Today, the foam walls of a household refrigerator contain 5 times as much CFC as is used for cooling.

Results of the most current research, as well as new technologies and processes, need to be shared with the developing countries. Ozone depletion is a global problem that requires a coordinated response. Unless the most recent

advances are shared with these nations—where CFC emissions are growing the fastest—they will continue to use environmentally damaging equipment for years to come.

Profile of commonly used Chemicals and use.

Chemicals	Atmospheric lifetime *	Annual growth rate	Application
CFC-12	139 years	5%	Air Conditioning, Refrigeration, Aerosols, Foams
CFC-11	76 years	5%	Foams, Aerosols, Refrigeration Solvents
CFC-113	92 years	10%	
Carbon Tetra-Chloride	67 years	1%	Solvents
Methyl Chloroform	8 years	7%	Solvents
Halon 1301	101 years	n.a.	Fire Extinguisher
Halon 1211	22 years	11%	Refrigeration, Foams

* Time it takes for 63% of the chemical to be washed out of the atmosphere.

Acid Rain

When fossil fuels such as coal, gasoline, and fuel oils are burned, they emit oxides of sulfur, carbon, and nitrogen into the air. These oxides combine with moisture in the air to form sulfuric acid, carbonic acid, and nitric acid. When it rains or snows, these acids are brought to Earth in what is called acid rain.

During the course of the 20th century, the acidity of the air and acid rain have come to be recognized as a leading threat to the stability and quality of the earth's environment. Most of this acidity is produced in the industrialized nations of the Northern Hemisphere: the United States, Canada, Japan, and most of the countries of Eastern and Western Europe.

The effects of acid rain can be devastating to many forms of life, including human life. Its effects can be most vividly seen, however, in lakes, rivers, and streams and on vegetation. Acidity in water kills virtually all life forms. By the early 1990s tens of thousands of lakes had been destroyed by acid rain. The problem has been most severe in Norway, Sweden, and Canada.

The threat posed by acid rain is not limited

by geographic boundaries, for prevailing winds carry the pollutants around the globe. For example, much research supports the conclusion that pollution from coal-powered electricity generating stations in the midwestern United States is the ultimate cause of the severe acid rain problem in eastern Canada and the northern United States. Nor are the destructive effects of acid rain limited to the natural environment. Structures made of stone, metal, and wood have also been damaged or destroyed. Some of the world's great monuments, including cathedrals of Europe and the Colosseum in Rome, have shown signs of deterioration caused by acid rain.

Scientists use what is called the pH factor to measure the acidity or alkalinity of liquid solutions. On a scale from 0 to 14, the number represents the highest level of acid and the lowest level of basic or alkaline. A solution of distilled water containing neither acids nor alkalies, is designated 7, or neutral. If the pH of rain falls below 5.5, the rain is considered acidic. Rainfalls in the eastern United States and in Western Europe often range from 4.5 to 5.5.

Although the cost of such antipollution equipment as burners, filters, and chemical washing devices is great, the cost in damage to the environment and human life is estimated to be much greater because the damage is irreversible. Although preventative measures are being taken, up to 500,000 lakes in North America and more than 118 million cubic feet of timber in Europe may be destroyed before the end of the 20th century.



e El Nino effects

El Nino (the infant) is a climatic phenomenon in the Pacific Ocean that has appeared many times in the past. It usually begins around Christmas and generally affects the western coast of South America. The benign name for the phenomenon comes from the nearness to Christmas and also because the current 'gifts' in the form of exotic tropical species and normally cold waters off the shore of South America. This benevolence is misleading, however, for El Nino brings death and destruction. There are two related events that occur during these episodes. One is the Southern Oscillation, a change in the atmosphere. The other is El Nino, a change in ocean currents and temperature. Since the two events are intimately related, both the meteorologists and oceanographers have come to refer to the combined phenomenon as an El Nino-Southern Oscillation event, or ENSO for short. For the rest of the world, however, the name El Nino has proved to win out over the somewhat more accurate but unromantic name ENSO.

In 1982, the surge of warm water brought by the undercurrent had reached almost to the coast of South America. Water temperatures along the coast rose by 6 degrees centigrade. The proved catastrophic for the vast store of microscopic marine life that can only survive in the cooler waters that flow along the equator. They either floated away into cooler waters or died, mostly the latter. The other life—fish, birds, and mammals—that rely directly or indirectly on these microscopic organisms died too. All the Galapagos fur seals born in 1982 died. Another major disaster was death of coral polyps across the Pacific. The coral reefs depend on living coral to maintain them, this change could lead to long-term consequences from El Nino. In Ecuador, Peru, and Bolivia the rain fall exceeded all previous records. Across the Pacific, on the other hand usually moist areas were wracked by devastating droughts. The worst drought in history struck Australia, and similarly droughts hit the Philippines, parts of India and even the United States. El Nino wracked the West Coast, Louisiana, and Florida, taking lives and destroying homes and crops. Some scientists believe that the El Nino was responsible for the April 1982 El Chichon volcano in Mexico.

Recently, weather watchers knew of one weather-monster, the El Nino. It hits the Pacific ocean, triggering droughts and floods all over large and far flung areas of the planet. But new clues reveal that El Nino is not alone. There are similar but lesser

fiends that rule the Indian and Atlantic oceans.

Like El Nino, the new phenomena have also been linked to the pattern of rainfall over parts of the surrounding continents. Meteorologists in Britain and Australia are already using temperature variations which trigger these turbulences to predict rainfall in Australia and Brazil.

El Nino's lesser known cousins were discovered thanks to the World Meteorological Organisation's recently concluded marathon 10-year Tropical Ocean Global Atmosphere (TOGA) experiment to monitor sea-surface temperatures. This study was supported by another international effort, called the World Ocean Circulation Experiment.

The new phenomena operate in the manner of El Nino, but their impact is less. When the El Nino whirls into action, a warm pool surrounding eastern Indonesia undergoes a wintery phase, reducing the difference in temperature between the pool and central Pacific towards South America. This weakens the trade winds, unleashing a flood of warmer water eastward across the Pacific, bringing in its wake tropical storms. These changes cause widespread nuisance including drought in eastern Australia, changes in the monsoon in India, and floods in Peru.

One of the newcomers, called the Indian Ocean dipole, was first noticed in the early 1980s by the meteorologists investigating the connection between surface temperatures in the Indian Ocean and rainfall across Australian deserts. Scientists took a decade to decipher its nature.

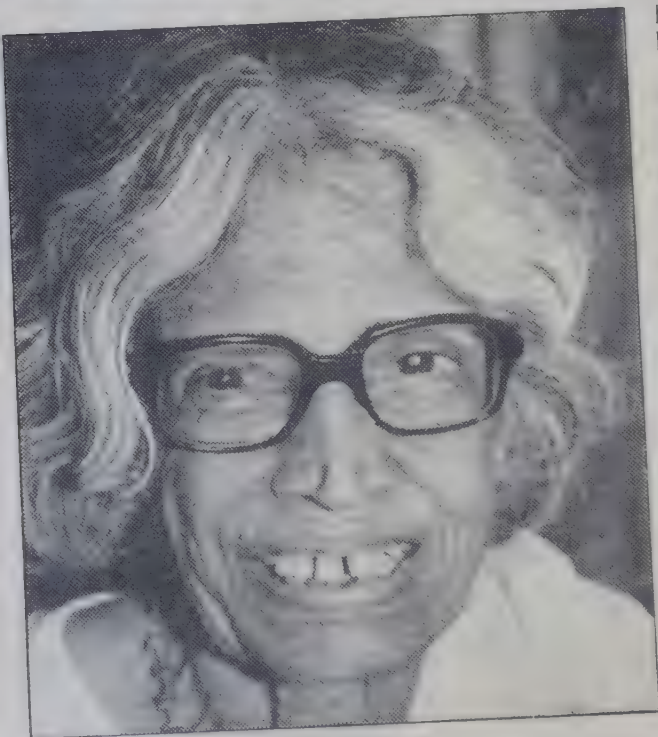
The dipole is a twin system of a warmer than average band of water between northern Australia and Java and an unusually cold band of water running northwest into the Indian Ocean from Australia's west coast.

The other newcomer operates from the tropical Atlantic. Chris Folland and colleagues at the British meteorological office's Hadley's Centre for Climate Prediction and Research in Berkshire have been monitoring changes in sea-surface temperatures in the region. They can now use these data to predict the amount of rainfall in northeast Brazil during the rainy season. But here El Nino's influence must be reckoned before venturing any predictions.

Folland says the tropical Atlantic blows hot and cold between January and May. When the sea in the southern tropics becomes warmer than usual and water to the north of the equator cools, it rains cats and dogs in northeast Brazil. When the pattern is reversed, the season is drier.

The links between these temperature vicissitudes and rainfall are still tenuous. To get better handle on El Nino's cousins, scientists will be looking at them more closely under a 15-year study of the climate's capricious nature.

Awards, Honours



N. Balamaniamma

Nobel Prizes, 1995

Literature Seamus Heaney, Irish poet and essayist.

Physics Martin I. Perl of Stanford University, and Frederick Reins of the University of California-Irvine-both Americans.

Chemistry Paul Crutzen of the Netherlands and Americans Mario Molina and F. Sherwood Roland.

Medicine Edward Lewis of the US, Christiane Nusslein-Volhard of Germany and Eric Wieschaus of Princeton University in the US.

Economics Rober E. Lucas Jr. of the US.

Peace Joseph Rotblat, anti-nuclear campaigner, and the Pugwash conferences on Science and World Affairs which he chairs.

Other Awards

Science

Third World Academy of Sciences award (Italy based IWAS) Prof. D. Balasubramanian,

Director, Centre for Cellular and Molecular Biology.

Kalinga prize, '95 (UNESCO): Julieta Norma Fierro Gossman, for popularisation of science £ 1000.

G.D. Birla award for scientific research, 1995: Prof. G.S. Aggarwal. Rs. 100,000.

Literature

Saraswati Samman, 1995 (K.K. Birla Foundation). Mrs. N. Balamaniamma, eminent Mala-yalam poet (*Nivedyam*) Rs. 300,000.

Russian Booker Prize George Vladimov, former human rights activist living in exile in Germany. For the best novel of the year. *A General and His Army*. \$12,500.

Vayalar award Thikkodiyan ('Arangu Kanatha Nadan') Rs. 25,000

Ezhuthachan Puraskaram (Kerala Govt.): Balamaniamma, renowned poetess. Rs. 100,000

Hans Christian Andersen award, 1996 Ruskin Bond, renowned Indian writer

Booker Prize Pat Barker, British author (*The Ghost Road*)

Vyas Samman, 1995 (K.K. Birla Foundation). Kunwar Narayan, Hindi poet and writer Rs. 150,000.

Films

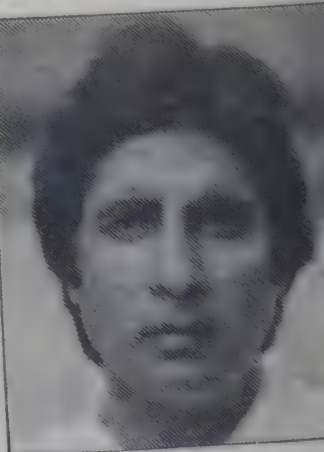
Medal of the Chevalier of Arts and Letters (France's highest artistic honour) Shashi Stone, "Basic Instinct" star.

Bharat Kala Rattan Puraskar: Amitabh Bachan.

Damascus Film Festival: Best director: Govind Nihalani (*Drohkaal*)

National Film Awards, 1994 (see pages 376 & 377 also)

Feature Film in Assamese:



Amitabh Bachan

Hkhagorloi Bohu Door

Feature Film in Bengali: *Amodini*
 Feature Film in Hindi: *Mammo*
 Feature Film in Kannada: *Kottreshi Kanasu*.
 Feature Film in Malayalam: *Sukrutham*
 Feature Film in Manipur: *Mayophy Gee Macha*
 Feature Film in Tamil: *Nammavar*
 Feature Film in English: *English August*
 Special Mention: Maghesh (*Nammavar*),
 Bishnu Kharghoria (*Hkhagorloi Bohu Door*) and
 S.Kumar (*Parinayam*)

Arts & Music

Lata Mangeshkar national award
 (M.P.Govt.): Talat Mahmood Rs. 100,000
Turner Prize (Britain's most controversial
 art award): Damien Hirst \$ 31,000.

Media

Natali Prize (European Commission) 1994:
 P. Sainath.

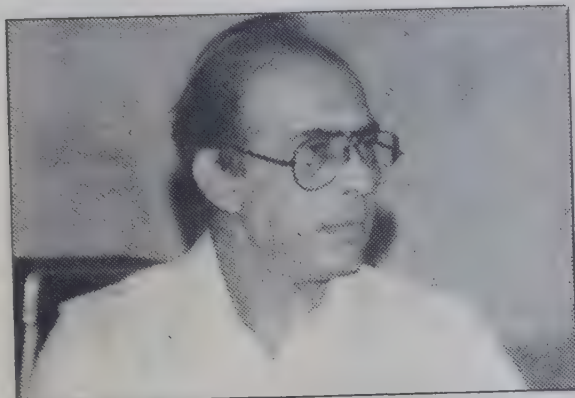
Peace

'A Woman for Peace 1995' award (Together
 for Peace Foundation) Sonia Gandhi.
Indira Gandhi Award for National Inte-
gration, 1995 Jointly to Natwar Thakkar, noted
 Gandhian, and Sardar Beant Singh, former Punjab
 CM (Posthumous). Rs.
 151,000

Indira Gandhi
International Prize
 for peace, disarmament and develop-
 ment: Gen. Olusegun Obasanjo, former Ni-
 gerian Head of State,
 for his contribution
 to African democracy
 and development and
 for international
 peace. (Now serving a
 15 year prison sen-
 tence) Rs. 25 lakh

Miscellaneous

Edouard Saouma
award 94-95 (FAO)
 All India Institute of
 Hygiene and Public
 Health, Calcutta, \$
 25,000 (Rs. 875,000)
Jeevan Gaurav
Puraskar, 1995
 (Chaturang Prati-
 shthaan) Intumati



Talat Mahmood

Parikh, social worker. Rs. 100,000.

Greenland's Santa of the Year Nelson
 Mandela

National Productivity Award (Asia Pacific
 Organisation) Dr. Jamshed J. Irani, the doyen of
 Indian industry.

Teacher's awards (Bharatiya Vidya Bhawan):
 Mrs. H. Vishalakashi, Shimoga Sarvothama
 Acharya (Rs. 25,000); Mrs. K.K. Lakshmi, Kodaku,
 and Mr. Ngongom Naba Singh, Bishnupur as
 Visishta Acharya (Rs. 10,000).

Miss World, 1995 Jacqueline Marcano of
 Venezuela; First runner up: Anica Martinovic of
 Croatia; Second runner up: Michelle Khan of
 Trinidad & Tobago.



Miss Venezuela becomes Miss World 1995

Dadabhai Naoroji award Dr. Verghese Kurien for advancing the interests of India in the sphere of cooperation and rural development. Rs. 25,000.

Dayawati Modi award Mother Teresa, Rs. 250,000.

Meghdoot award Nanji Bhai Amrabhai Solanki, Post Master of Revdi Bazar in Ahmedabad, for being the best postmaster in India.

Anant Gopal Sheroy Award Dr Madan Mishra, for his contribution towards develop-

ing and propagating Sanskrit.

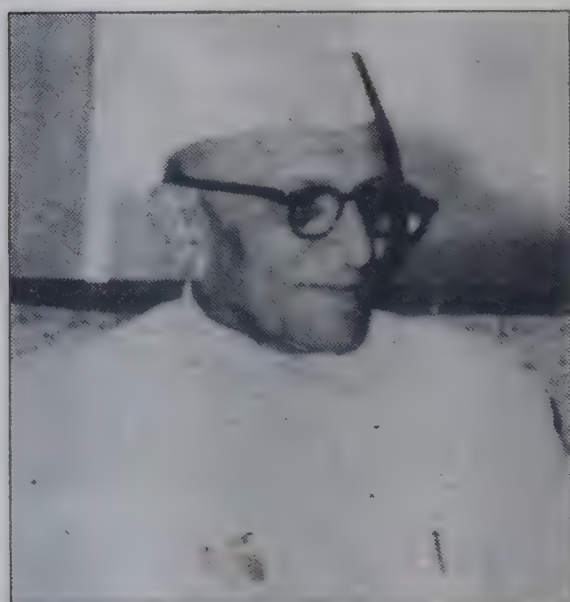
Yudhvir Memorial award Dr Manmohan Singh, Finance Minister. Rs. 25,000.

Miss Asia-Pacific beauty crown Yoon mi-jung of S.Korea. First runner up: Ruchita Malhotra (India); Second runner up: Chen Hsiao-ping (Taiwan)

Aga Khan Award for Architecture, 1995 Aranya Community Housing in Indore, M.P. and several projects in other countries.

Man of the Year (American Biographical Institute), 1995: Vir Singh, Indian ecologist.

Obituary, 1995



Morarji Desai

India

January, 8 Madhu Limaye, 72, veteran socialist leader.

- 17 G.Ramachandran, 90, Eminent Gandhian and freedom fighter. Founder of Gandhi-gram Rural Institute, Madurai.
- 18 P.T.Chandy, 85, former V.C. of Gorakhpur University; educationist.
- 25 U.Rajagopal, 71, Cameraman ("Chemmeen").
- 28 C. Unniraja, 76, CPI leader & Marxist ideologue.
- 31 S.S.Nadkarni, 61, Chairman, SEBI and banking expert.

February 1 Chandulal Chandrakar, 75, journa-

list-turned-politician, AICC spokesman.

- 8 Tikka Ram Paliwal, 86, former Rajasthan Chief Minister.
- 9 Gulsher Khan Shaani, 63, Hindi writer. "Kala Jal".
- 22 Ram Krishnan, former Punjab Chief Minister.

March 3 Nikhil Ghose, 76, tabla artiste and music composer.

- 8 Sooranad Kunjan Pillai, 84, noted Malayalam litterateur, lexicographer, grammarian, critic, editor.
- 20 Rohit Mehta, 87, scholar, theosophist.
- 23 Shakti Chattopadhyay, 61, Bengali Poet.
- 29 Harindra Dave, 65, Gujarati poet, author, journalist.

April 4 Archbishop Mar Abraham Kattumana 51, first pontifical delegate of the Syro Malabar Church.

- 10 Morarji Desai, 99 first non-Congress (I) Prime Minister of India.
- 12 E.K. Imbichi Bawa, 78, CPM leader.
- 15 Liladhar Joshi, 90, first Chief Minister of erstwhile Madhya Bharat.
- 25 K.K. Srinivasan, 65, Kerala MLA (Haripad); K.G. Marar, 58, President of BJP, Kerala.
- 27 Dr. C.A. Abdulsalam, 57, Pro-Vice Chancellor, Mahatma Gandhi University.

May 9 Abha Gandhi, 70, freedom fighter & close associate of Gandhiji.

- 18 Sukdev Prasad, 75, former Governor (Rajasthan) and Union Minister; Sukhomoy Sengupta, 76, first Chief Minister of Tripura.
- 26 Kamukara Purushothaman, 65, playback singer (Kerala).
- 28 R.R. Morarka, 72, former MP and close associate of Gandhiji.

e 8 Moidu Maulavi, 108, veteran centenarian most respected Congress leaders; N.G. Ranga, 94, veteran Congress leader, and a parliamentarian of 50 years of standing.

P.N. Panickar, 85, social worker who pioneered literacy and library movements and non-formal education in Kerala.

y 2 Prof. G. Ram Reddy, 66, educationist, former Chairman of UGC.

Rajan Pillai, 47, business tycoon known as 'biscuit king'.

8 Col. Brajendra Singh, former ruler of Bharatpur, who converted his duck shooting grounds into one of world's finest world habitat, the Keoladeo Ghana National Park; **Amiya Kisku**, 75, prominent educationist and a former Union Minister.

Ms. Ashapura Devi, 86, leading Bengali writer; over 200 novels. 'Pati Patni'. 'Sagar Sukaya Jaye', Nepathya Nayika; Janpith award 1976. **Bimal Das Gupta**, 74, eminent artist. **K. Uppiliappan**, 53, Commissioner & Secretary, Personnel and Administration Reforms Department and Director, Institute of Management in Government, Kerala. **Hashu Advani**, 69, Maharashtra Finance Minister.

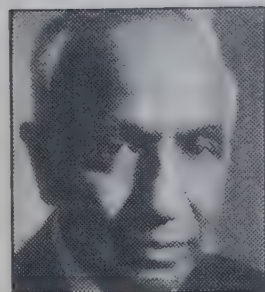
Prof. V.M. Dandekar, 75, economist. Director, Gokhale Institute of Politics and Economics 1967-80. "Poverty in India".

gust 1 G. Parthasarathy, 83, eminent academician and diplomat. Former Foreign Secretary and first Vice Chancellor of JNU. **Geeta Bajaj**, 76, freedom fighter and associate of Gandhi and Vinoba Bhave. **Sarojini Nanawati**, 84, veteran freedom fighter and close associate of Mahatma Gandhi.

Parvati Giri, 69, freedom fighter and social worker of Orissa;

Ms. Majone Ben (Sykes), 90, a close associate of Gandhiji, Tagore and Vinoba Bhave. **Subramanyam Chandrasekhar**, 84, Nobel

laureate in Physics (1983) for his work in, astro physics. Nephew of Dr. C.V. Raman; **Mohammad Usman Arif**, 72, former Union Minister and ex-Governor;



S. Chandrasekhar

S. Ranganatha Ek-kundi, 72, Kannada poet. "Bakulada Hoovagalu".

27 **Madhu Mehta**, 65, associate of Rajaji and convener of Hindustani Andolan.

31 **Beant Singh**, 73, Punjab Chief Minister (bomb blast);

A.A. Rahim, 74, Congress leader and former Meghalaya governor.

September 3 **Sivaram** (C. K. Sivaraman Nair), 78, cartoonist.

4 **P.C. Manavedan Raja**, 102, the Zamorin of Kozhikode.

5 **Salil Choudhary**, 70, eminent music director, composer and lyricist.

6 **B.K. Thaper**, 73, former D.G. of ASI.

12 **Hari Pothen**, 53, Film producer.

14 **Sumati Oraon**, 52, former Union Minister.

18 **Kaka Hathrasi**, 90, Hindi poet of humour.

20 **A.L. Jacob**, 85, freedom fighter, veteran Congressman and former minister.



Salil Choudhary

October 1 **Aditya Birla**, 51, top industrialist of India; **H.K. Firodia**, 76, well-known industrialist.

2 **R.K. Nayyar**, 61, film producer-director.

3 **M.P. Sivagnanam**, 89, freedom fighter.

10 **Mrs. Leela Damodaran Menon**, 72, freedom fighter.

18 **M.N. Goiporia**, 63, former State Bank of India Chairman.

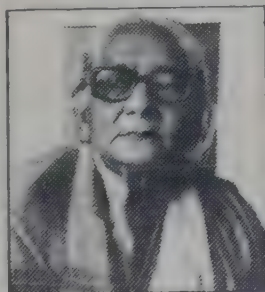
19 **Baby Naaz**, 55, Hindi film actress.

27 **Dr. Yashwant S. Chitale**, 65, noted constitutional lawyer.

November 7 **J.C. Jain**, 84, media personality.



Aditya Birla



Ashapura Devi

- 10 Prof. Fazal Tabish, 62, Urdu litterateur and actor.
- 13 Adhip Kumar Sarkar, 45, journalist; K.B.Pathak, 75, film writer.
- 14 N.N.Pillai, 77, Malayalam playwright, director and actor (Kerala).; M.K.Krishnan, former Kerala minister; P.V.G.Raju, 72, former raja of Vizianagaram.
- 26 Shankar Dayal Singh, 60, Janata Dal M.P; Pragada Kotaiah, 80, freedom fighter and Rayja Sabha member.
- 30 Dinesh Singh, 70, Union Minister; former Foreign Minister.

December 1 M.Magunta Subbarani Reddy, 48, Congress M.P.

- 4 Rajaram Shankarrao Mane, 67, Lok Sabha member.

World

January 1 Mohamed Siad Barre, former Somali President (in exile in Lagos).

- 2 Manuel Rivera, 67, Spanish painter.

- 3 Eugene P. Wigner,

- 92, Nobel prize-winning physicist who played a prominent role in the development of atomic bomb and nuclear energy.

- 6 Joe Slovo, 68, Chairman of the South African Communist Party. Lithuanian who migrated to RSA in 1935.

- 7 Harry Golombek, 83, a British international chess master and author of 38 books on chess.

- 10 Souphanouvong, 86, former President of Laos.

- 17 Miguel Torga, 87, Portuguese poet, described as the 'conscience of his nation'.

- 18 Dr. Adolf Butenandt, 91, German scientist and winner 1939 Nobel Prize for Chemistry.

- 20 John Halas, 81, British animator who made the cartoon version of George Orwell's book 'Animal Farm'.

- 22 Rose Fitzgerald Kennedy, 104, Matriarch of the Kennedy clan, mother of President Kennedy and Senator Kennedy.

- 27 George Robert Stibitz, 90, whose mathematical calculations and tinkering at the kitchen table led him to invent the first digital computer in 1940.

- 30 Gerald Durrell, 70, India-born best selling British writer, zoologist animal lover



Siad Barre

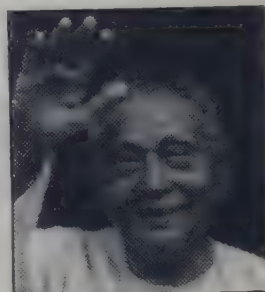
known for his witty depictions of the animal kingdom. "My Family and Other Animals".

- 31 George F. Abbott, 107, playwright, actor, director, known as Mr. Broadway.

February 6 James Merrill, 68, Pulitzer prize-winning poet.

- 11 J. William Fulbright, 89, US senator who left a powerful imprint on foreign affairs and international education.

- 14 U.Nu, 87, former Prime Minister of Burma



U. Nu

the only civilian PM of a country dominated by the military.

- 22 Robert Bolt, 70, British playwright. Won Oscars for screenplay of "Dr. Zhivago" and "A Man for All Seasons".

- 23 James Herriot, 78, who shared his experiences as a country veterinarian in the best-selling "All Creatures, Great and Small".

- 24 Michael Vincent Gazzo, 71, actor and playwright.

- 27 Jack Clayton, 73, Bri. film director.

March 1 Georges Koehler, 48, who shared 1984 Nobel Prize for medicine.

- 3 Howard W. Hunter, 87, spiritual leader of world's nearly 9 m. Mormons.

- 7 Paul-Emile Victor, 87, French explorer who spent 5 decades documenting the Earth's polar wildernesses.

- 8 Paul Horgan, 91, novelist, historian and biographer, winner of two Pulitzers.

- 15 Willy Fowler, 83, US physicist who shared the 1983 Nobel Prize in Physics.

- 16 Albert Hackett, 95, playwright who won a Pulitzer Prize with his first wife and collaborator Frances Goodrich for the play 'The Diary of Anne Frank'.

- 25 Joseph Needham, 94, Britain scholar, whose speciality was the history of science. "Science and Civilization in China".

- 26 Vladimir Maximov, 64, Russian writer and playwright.

April 5 Hannes Alfvén, 86, Swedish scientist Nobel Physics Prize (1970);

Ron Richardson, 43, singer and actor winner of a Tony award for his performance in "Big River".

the Adventures of Huckleberry Finn".

- 10 Chen Yun, 90, veteran Chinese leader opponent of Deng Xiaoping for a decade.

- 11 Carl Mau, 72, American minister who led the 56 m. members of the Lutheran World Federation 1974-'85.
- 15 Liala, 98, one of Italy's best-known romance authors (Real name: Amalia Liana Cambiasi Negretti Odescalchi).
- 20 Milovan Djilas, 83, Eastern Europe's first prominent dissident, once No. 2 to Yugoslavia's leader Tito.
- 22 Sir Horace Kadoorie, 92, member of one of Hong Kong's oldest business dynasties.
- 25 Ginger Rogers, 83, Hollywood star; 73 films; Oscar (Kitty Foyle); the glamorous dance partner of debonaire Fred Astaire.

- May** 4 Lewis T. Preston, 68, World Bank President.
- 6 Mikhail Botvinnik, 83, Russian chess theorist and world chess champion during most of the 1950s.
 - 9 Yusuf Cachalia, 80, leader of Transvaal Indian Congress and close associate of Mandela.
 - 11 David Avidan, 61, Poet, Playwright and Screenplay writer of Israel; Arthur Lubin, 96, the Hollywood director.
 - 21 Les Aspin, 56, former US Defence Secretary and defence whiz-kid.



Harold Wilson

the Concorde supersonic airliner.

- June** 5 Trevor N. Dupuy, 79, military historian. More than 90 books.
- 6 J. Presper Eckert, 76, computer pioneer who co-invented the first electronic digital computer.
 - 8 Gen. Juas Conlos Ongania, 81, President of Argentina 1966-70.
 - 12 M.D. Naidoo, 75, S. African anti-apartheid figure who spent 14 years in exile.
 - 16 John Atanasoff, 91, computer pioneer. The physicist and Clifford Berry-working at Iowa State University, invented a digital computing device; Mordechai Gur, 65, Dy. Defence Minister, Israel, (suicide).
 - 20 Marcel Sony Labou Tansi, 48, celebrated

Central African novelist known for his satirical treatment of colonialist Africa; Harry Gwala, 74, one of the most militant leaders of ANC, imprisoned with Mandela; E.M. Cioran, 84, French writer, born in Romania.

- 21 Peter Townsend, Group Captain, 80, WW II fighter pilot, barred from marrying Princess Margaret.



Jonas Salk

Warren E. Burgen, 87, US Chief Justice for 17 years.

- 29 Lana Turner, 75, actress Academy award, nomination 1957 ("Peyton Place").

- July** 2 Donald Sinclair, 84, the country veterinarian who inspired the Siegfried Farnon, character in the TV series "All Creatures Great and Small".

- 4 Eva Gabor, 74, actress.
- 5 Takeo Fukuda, 90, former Japanese PM; Mrs. Viktoria Brezhnev, 87, widow of former Soviet leader Brezhnev.
- 16 Stephen Spender, 86, poet, critic, essayist and one of the pre-eminent British writers of the 1930s.
- 17 Harry Guardino, filmactor. "House boat", "Dirty Harry"; Juan Manuel Fangio, 84, a five-time world Formula One Champion.



Stephen Spender

- 18 Princess Sangal Mahidol, 94, mother of Thailand's King Bhumibol Adulyadej.
- 20 Ernest Mandel, 72, one of world's leading Marxist economists.
- 21 Harold Larwood, 90, England's demon fast bowler of the early 1930s known for the technique of "Bodyline" bowling.
- 24 Gary Crosby, 62, entertainer, son of Bing Crosby.
- 25 Toru Kumon, 81, international maths educator, Invented the 'Kumon method'

Obituary

of teaching through rote memorisation.

Miklós Rozsa, 88, Academy Award-winning composer of the score for 'Ben-Hur' and other films. Susan Vera Cooper, English designer and manufacturer of ceramics.

August 6 Lord Harold

Lever, 81, a wealthy investor who was cabinet minister and economic adviser to two British PMs.

Brigid Brophy, 66, novelist, a leading figure in the 1960s so-called permissive society.

3 Mikey Mantle, 63,

Baseball great, former N.York Yankee centre fielder;

Mrs. Alison Hargreaves, 33, Scot, first woman to climb the Everest alone and without carrying oxygen. (Killed in an avalanche on K-2).

5 Lawrence R. Houston, 82, a 'founding father' of CIA.

7 Howard Koch, 93, who wrote the script for the classic love film 'Casablanca'.

0 Hugo Pratt, 68, Italian cartoonist and writer.

7 Carl Giles, 78, popular British cartoonist.

0 Michael Ende, 65, Writer of fantasy. "The Neverending Story";

Michael Vermeulen, 38, American born editor of Britain's GQ magazine.

September 11 Yuri Voronov, Abkhazian Dy. PM (Russia).

2 Sultan Qaboos Bin Said, Oman's Dy.PM; Olga Ivinskaya, 82, Pasternak's model for Lara in "Doctor Zhivago".

4 Jeremy Brett, 59, the actor who brought the legendary detective Sherlock Holmes to life on TV.

5 Michio Watanabe, 72, Japan's former Foreign Minister.

October 9 Kukit Pramoj, 84, former Thai PM; Alec Douglas Home, 92, British PM in the early 1960s.

14 Ellis Peters, 82, bestselling writer, creator of the medieval ecclesiastical sleuth brother Cadfael;



The coffin of Yitzhak Rabin lies at Jerusalem's Mount Herzl cemetery before world leaders.

Henry Roth, 89, author. 'Call it Sleep' (1934).
19 Iri Maruki, 94, Japanese painter.

21 Shannon Hoon, 28, whose vocals took the rock group 'Blind Melon' to the top of the charts in 1993;

Kingsley Amis, 73, British novelist; Linda Goodman, 70, the writer who brought astrology onto the best-seller lists, "Sun Signs, Love Signs and Star Signs".

25 Bobby Riggs, 77, former Wimbledon tennis champion.

November 2 Alvaro Gomez Hurtado, 76, veteran political leader of Colombia.

4 Yitzhak Rabin, 73, Israeli PM and Nobel Peace Prize laureate (assassinated); Gilles Deleuze, 70, French philosopher and writer (suicide);

Paul Eddington, 78, actor, known for role in TV satire 'Yes Minister'; Eddie Egan, 65, the New York city police officer whose exploits inspired the film "The French Connection". Nick named Popeye.

8 John Patrick, 90, Pulitzer-prize winning author of 'Teahouse of the August Moon' (suicide).

13 Sir Robert Stephens, 64, British actor.

23 Louis Malle, 63, French film director.

December 3 Robertson Davies, 82, one of Canada's most accomplished authors.

6 James Reston, 86, one of the giants of American journalism, twice winner of the Pulitzer Prize.

General Information

National Days

Date	Country	Occasion
January 1	Cuba	Liberation Day
January 1	Palestine	Revolution Day
January 1	Sudan	National Day
January 4	Myanmar	Independence Day
January 15	Croatia	Statehood Day(Celebration in India)
January 16	Luxembourg	Grand Duke's Birthday
January 26	Australia	Australia Day
January 26	India	Republic Day
January 31	Nauru	National Day
February 4	Sri Lanka	Independence Commemoration Day
February 6	New Zealand	Waitangi Day
February 7	Grenada	National Day
February 11	Iran	Victory of Islamic Revolution in Iran
February 16	Lithuania	National Day
February 18	Gambia	National Day
February 22	Qatar	Reform Movement Day
February 23	Brunei Darussalam	National Day
February 24	Estonia	National Day
February 25	Kuwait	National Day
February 27	S.A.D.R	Proclamation of S.A.D.R
March 3	Bulgaria/Morocco	National Day
March 6	Ghana	National Day
March 12	Mauritius	Republic Day
March 15	Italy	National Day (Celebration in India)
March 17	Ireland	St. Patrick's Day
March 20	Tunisia	National Day
March 21	Namibia	National Day
March 23	Pakistan	Pakistan Day
March 25	Greece	Independence Day
March 26	Bangladesh	National Day
April 4	Senegal	National Day
April 15	DPR Korea	President Kim Il Sung's Birthday
April 16	Denmark	Birthday of H.M. The Queen
April 17	Syria	National Day
April 18	Zimbabwe	Independence Day
April 21	U.K.	Queen's Birthday(Celebration in India)
April 26	Tanzania	National Day
April 27	South Africa	Freedom Day
April 27	Yugoslavia	Constitution Day
April 28	Afghanistan	Anniversary of the Victory of Jihad
April 30	Netherlands	Queen's Day
May 3	Poland	Anniversary of 1792 Constitution of Poland
May 4	Israel	National Day
May 5	Netherlands	National Day
May 8	Czech	National Day
May 17	Norway	Constitution Day
May 22	Yemen	National Day
May 25	Argentina	National Day

May 28	Armenia	Independence Day
May 28	Ethiopia	National Day
May 30	Croatia	Statehood Day
June 2	Italy	National Day
June 5	Seychelles	Liberation Day
June 6	Sweden	National Day
June 10	Portugal	National Day
June 11	U.K.	Queen's Official Birthday
June 12	Philippines	Independence Day
June 12	Russia	National Day
June 17	Iceland	National Day
June 30	Zaire	National Day
July 1	Canada	Canada Day
July 1	Somalia	National Day
July 4	U.S.A.	Independence Day
July 5-6	Czech	National Day
July 5	Rwanda	Independence Day
July 5	Venezuela	National Day
July 11	Mongolia	People's Revolution Day
July 14	France	National Day
July 17	Iraq	Republic Day
July 20	Colombia	Independence Day
July 21	Belgium	National Day
July 26	Maldives	Independence Day
July 28	Peru	Independence Day
August 1	Benin	National Day
August 1	Switzerland	Foundation of the Swiss Confederation
August 9	Singapore	National Day
August 10	Ecuador	National Day
August 15	Republic of Korea/India	Independence Day
August 17	Indonesia	Independence Day
August 19	Afghanistan	Independence Day
August 20	Hungary	National Day
August 24	Ukraine	Independence Day
August 25	Uruguay	National Day
August 31	Malaysia	Malaysia Day
August 31	Kyrgyzstan	National Day
August 31	Trinidad & Tobago	Independence Day
September 1	Libya/Slovakia	National Day
September 1	Uzbekistan	Independence Day
September 2	Vietnam	National Day
September 3	Qatar	National Day
September 7	Brazil	Independence Day
September 9	Democratic People's Republic of Korea	Anniversary of the Founding of the Democratic People's Republic of Korea
September 9	Tajikistan	National Day
September 15	Costa Rica	Independence Day
September 16	Mexico/Papua New Guinea	Independence Day
September 18	Chile	Independence Day
September 21	Belize/Malta	National Day
September 22	Mali	National Day
September 23	Saudi Arabia	National Day
October 1	China/Nigeria/San Marino	National Day
October 1	Cyprus	Independence Day
October 2	Guinea	National Day
October 3	Germany	Day of German Unity
October 9	Uganda	Independence Day
October 12	Spain	National Day
October 22	Holy See (Vatican)	Anniversary of the inauguration of the Pontificate of Pope John Paul

October 24	Zambia	National Day
October 25	Kazakstan	National Day
October 26	Austria	National Day
October 27	Turkmenistan	Independence Day
October 28	Czech	National Day
October 29	Turkey	Anniversary of the Declaration of The Republic
November 1	Algeria	National Day
November 3	Dominica, Commonwealth of	National Day
November 3	Panama	National Day
November 9	Cambodia	Independence Day
November 11	Angola	Independence Day
November 14	Jordan	Birthday of H.M.King Hussein
November 15	Belgium	King's Day
November 15	Palestine	Independence Day
November 18	Latvia/Oman	National Day
November 19	Monaco	National Day
November 22	Lebanon	National Day
November 25	Surinam	National Day
December 1	Romania	National Day
December 2	Laos	Founding of the Lao People's Democratic Republic
December 2	United Arab Emirates	National Day
December 5	Thailand	Birthday of H.M. the King
December 6	Finland	Independence Day
December 7	Ivory Coast	National Day
December 11	Burkina Faso	National Day
December 12	Kenya	National Day
December 17	Bhutan	Coronation of First Druk Gyalpo (King of Bhutan)
December 18	Niger	National Day
December 23	Japan	Birthday of H.M. the Emperor
December 28	Nepal	Birthday of H.M. the King

Important Days

January 12	National Youth Day
January 15	Army Day
January 26	Republic Day, International Customs Day
January 30	Martyrs' Day
February 28	National Science Day
March 8	International Women's Day
March 15	World Disabled Day
March 21	World Forestry Day
March 23	World Meteorological Day
April 5	National Maritime Day
April 7	World Health Day
April 18	World Heritage Day
April 22	Earth Day
May 1	Workers' Day (International Labour Day)
May 3	Press Freedom Day
May (2nd Sunday)	Mother's Day
May 8	World Red Cross Day
May 15	International Day of the Family
May 17	World Telcommunication Day
May 24	Commonwealth Day
May 31	Anti-tobacco Day

June 5
 June 27
 July 11
 August 6
 August 9
 August 15
 August 29
 September 5
 September 8
 September 16
 September 21
 September 26
 September 27
 October 3
 October 4
 October 8
 October 8
 October 9
 October 10
 October 13

 October 14
 October 15
 October 16
 October 24
 October 30
 November 14
 December 1
 December 4
 December 7
 December 10
 December 23

World Environment Day
 World Diabetes Day
 World Population Day
 Hiroshima Day
 Quit India Day, Nagasaki Day
 Independence Day
 National Sports Day
 Teachers' Day
 World Literacy Day
 World Ozone Day
 Alzheimer's Day
 Day of the Deaf
 World Tourism Day
 World Habitat Day
 World Animal Welfare Day
 Indian Air Force Day
 World Elders' Day
 World Post Office Day
 National Post Day
 UN International Day for Natural Disaster
 Reduction
 World Standards Day
 World White Cane Day (guiding the blind)
 World Food Day
 UN Day
 World Thrift Day
 Children's Day
 World AIDS Day
 Navy Day
 Armed Forces Flag Day
 Human Rights Day
 Kisan Divas (Farmer's Day)

Sobriquets

Sobriquets

Bengal's Sorrow
 Blue Mountains
 City of the Golden Gate
 City of the Golden Temple
 City of Dreaming Spires
 City of Magnificent Distance
 City of Seven Hills/Eternal City
 Cockpit of Europe
 Dark Continent
 Emerald Island
 Empire City/City of Skyscrapers
 Garden of England
 Gate of Tears
 Gateway of India
 Gift of the Nile
 Granite City
 Great White Way
 Herring Pond
 Holy Land
 Hermit Kingdom

Primary Names

River Damodar
 Nilgiri Hills
 San Francisco, USA
 Amritsar
 Oxford, UK
 Washington, D.C., USA
 Rome
 Belgium
 Africa
 Ireland
 New York, USA
 Kent, England
 Bab-el-mandab
 Bombay
 Egypt
 Aberdeen, Scotland
 Broadway, New York
 Atlantic Ocean
 Palestine
 Korea

nd of Cloves
 nd of Pearls
 of the Mediterranean
 y with the Lamp
 d of Cakes
 d of the Kangaroo
 d of the Golden Pagoda
 d of Lilies/Land of Maple
 d of Morning Calm
 d of the Midnight Sun
 d of the Rising Sun
 d of Thousand Lakes
 d of Thunderbolt
 d of the White Elephants
 ore Tiger
 ver Never Land
 rl of the Antilles
 ars of Hercules
 k City
 yground of Europe
 aker City
 een of the Adriatic
 een of the Arabian Sea
 of of the World
 nt of the Gutters
 k Man of Europe
 row of China/Yellow River
 ice Garden of India
 nice of the East
 nice of the North
 ite City
 orld s Bread Basket
 orld s Loneliest Island

Zanzibar
 Bahrain
 Gibraltar
 Florence Nightingale
 Scotland
 Australia
 Myanmar (Burma)
 Canada
 Korea
 Norway
 Japan
 Finland
 Bhutan
 Thailand
 Tippu Sultan
 Prairies of N. Australia
 Cuba
 Gibraltar
 Jaipur
 Switzerland
 Philadelphia
 Venice, Italy
 Kochi
 Pamirs
 Mother Teresa
 Turkey
 River Hwang Ho
 Kerala
 Alappuzha
 Stockholm, Sweden
 Belgrade, Yugoslavia
 Prairies of N. America
 Tristan da Cunha

News Agencies

Agency		Headquarters at
A	Anadol Ajansi	Ankara
AP	Australian Associated Press	Sydney
ON	Allgemeiner Deutscher Nachrichtendienst	Berlin
E	Agence Europe	Brussels
FP	Agence France Presse	Paris
NA	Athenagence	Athens
NGOP	Angola Agencia naticiosa N'gola Press	Luanda
NP	Algemeen Nederlands Persbureau	The Hague
NSA	Agenzia Nazionale Stampa Associate	Rome
NTARA	Indonesian National News Agency	Jakarta
P	Associated Press	New York
PP	Agence Parisienne de Presse	Paris
PP	Associated Press of Pakistan	Islamabad
UP	Australian United Press	Melbourne
ERNAMA	Malaysian National News Agency	Kuala Lumpur
SS	Bangladesh Sangbad Sangstha	Dhaka
ANA	Caribbean News Agency	Bridgetown
NS	China News Service	Beijing
P	Canadian Press	Toronto

CSTK	Ceskoslovenska Tiskova Kancelar	Prag
DPA	Deutsche Presse Agentur	Hambu
EXTEL	Exchange and Telegraph Company	Lond
GNA	Agence Guineenne de Presse	Conak
GNA	Ghana News Agency	Acc
INA	Iraqi News Agency	Banghd
IPS	Inter Press Service	Ros
IRNA	Islamic Republic News Agency	Teh
ITIM	Associated Israel Press	Tel Av
KNA	Kenya News Agency	Nairo
KUNA	Kuwait News Agency	Kuwait Ci
KYODO	Kyodo nTsushin	Tok
MENA	Middle East News Agency	Cai
NOVOSTI	Agentstvo pechati Novosti	Mosco
NPS	Norsk Presse Service	Os
NZPA	New Zealand Press Agency	Wellingt
PANA	Pan-African News Agency	Dak
PNA	Philippines News Agency	Mani
PPI	Pakistan Press International	Karac
PTI	Press Trust of India	Bomb
REUTERS	Reuters	Lond
SPA	Saudi press Agency	Riyad
TANJUG	Novinska Agencija Tanjug	Belgran
TASS	Telegraph Agency of the Sovereign States	Mosco
UNI	United News of India	New Del
UPI	United Press International	New Yo
XINHUA	Xinhua	Beijin
ZIANA	Zimbabwe Inter-Africa News Agency	Hara

Wedding anniversaries

Traditionally a special kind of gift was associated with a few of the anniversary celebrations. Paper, wood and tin were for the first, fifth and tenth years, respectively. The 15th or crystal anniversary was usually for gifts within the family. The 25th or silver anniversary was an event of great importance. The 50th or golden anniversary was a more or less sacred event. The traditional wedding anniversaries are: (1) paper, (5) wood, (10) tin, (15) crystal, (20) china, (25) silver, (50) gold, and (75) diamond.

A widely accepted list is given below

Wedding	Celebrating	
	Year 1	Iron/Sugarcandy
Cotton		Wool
Paper	2	Bronze/Electrical Appliances
Leather	3	Copper/Pottery
Flower/fruit	4	Tin
Wood	5	Steel
		Silk and fine linen
		Lace
		Ivory
		Crystal
		China
		Silver
		Pearl
		Coral
		Ruby
		Sapphire
		Golden
		Emerald
		Diamond

Table of Precedence (India)

1. President
2. Vice President
3. Prime Minister
4. Governors of States within their respective states
5. Former Presidents
- 5a. Deputy Prime Minister
6. Chief Justice of India
Speaker of Lok Sabha
7. Cabinet Ministers of the Union
Chief Ministers of States within their respective states
Deputy Chairman, Planning Commission
Former Prime Ministers
Leaders of opposition in Rajya Sabha and Lok Sabha
- 7a. Holders of Bharat Ratna decoration
8. Ambassadors extraordinary and plenipotentiary and High Commissioners of Commonwealth countries accredited to India.
Chief Ministers of states outside their respective states
Governors of states outside their respective states
9. Judges of the Supreme Court
10. Dy. Chairman, Rajya Sabha
Dy. Chief Ministers of states
Dy. Speaker, Lok Sabha
Members of Planning Commission
Ministers of State of the union and any other minister in the ministry of defence for defence matters
11. Attorney-General of India
Cabinet Secretary
Chief Election Commissioner
Comptroller and Auditor-General
Lt. Governors within their respective Union Territories
12. Chiefs of Staff holding the rank of full General or equivalent rank
13. Envoys extraordinary and ministers plenipotentiary accredited to India
14. Chairman and Speaker of state legislatures within their respective states
Chief Justice of high courts within their respective jurisdiction
15. Cabinet Ministers in states within their respective states
CMs of UTs within their respective UTs
Deputy Ministers of the Union
16. Officiating chiefs of staff holding the rank of Lt. General or equivalent rank.
17. Chairman, CAT
Chairman, Minorities Commission
Chairman, SC and ST Commission
Chairman, UPSC
Chief Justices of high courts outside their respective jurisdictions
Puisne judges of high courts within their respective jurisdictions
18. Cabinet ministers in states outside their respective states
Chairman and Speakers of state legislatures outside their respective states
Chairman, MRTD Commission
Dy. Chairman and Dy. Speakers of state legislatures within their respective states
Ministers of UTs within their respective UTs
Speakers of legislative assemblies in UTs within their respective UTs
19. Chief Commissioner of UTs not having councils of ministers, within their respective UTs
Dy. Ministers in states within their respective states

- Dy. Speakers of legislative assemblies in UTs, within their respective UTs
20. Dy. Chairman and Dy. Speakers of state legislatures outside their respective states
- Ministers of States in states outside their respective states
- Puisne judges of high courts outside their respective jurisdictions
21. MPs
22. Dy. Ministers in states outside their respective states
23. Army commanders/vice chief of the army staff or equivalent in other services
- Chief Secretaries to state govts. within their respective states
- Commissioner for linguistic minorities
- Commissioner for SC and ST
- Members, Minorities Commission
- Members, SC and ST Commission
- Officers of the rank of full General or equivalent rank
- Secretaries of Govt. of India (incl. officers holding this office ex officio)
- Secretary, Minorities Commission
- Secretary, SC and ST commission
- Secretary to President
- Secretary to the PM
- Secretary, RS, LS
- Solicitor-General
- Vice-chairman, CAT
24. Officers of the rank of Lt. General or equivalent rank
- Additional Solicitor-General
- Advocate-Generals of states
- Chairman, Tariff Commission
- Charge d affairs and acting High Commissioners a pied and interim
- CMs of UTs outside their respective UTs
- Chief Secretaries of state governments outside their respective states
- Deputy CAG
- Deputy Speakers of legislative assemblies in UTs outside their respective UTs
- Director, CBI
- Director-General BSF
- Director-General CRP
- Director, IB
- Lt. Governors outside their respective Union Territories
- Members, CAT
- Members, MRTP Commission
- Members, UPSC
- Ministers of UTs outside their respective UTs
- Principal staff officers of the armed forces and officers of the rank of Major General or equivalent rank
- Speakers of legislative assemblies in UTs outside their respective UTs
26. Jt. Secretaries to the Govt. of India and officers of equivalent rank
- Officers of the rank of Major General or equivalent rank.

Heads of Important Offices

Speaker, Lok Sabha	: Shivraj Patil
Dy. Speaker, Lok Sabha	: S. Mallikarjunaiah
Chairman, Rajya Sabha	: K. R. Narayanan
Dy. Chairman, Rajya Sabha	: Dr. Najma Heptulla
Governor, Reserve Bank of India	: Dr. C. Rangarajan
Attorney General	: Milan Kumar Banerjee
Solicitor General	: Arvind Dev Giri

Adjutant General	: Lt. Gen. M. M. Lakhera
Comptroller and Auditor-General	: C. G. Somiah
Principal Secretary to the Prime Minister	: Amar Nath Verma
Cabinet Secretary	: Surinder Singh
Foreign Secretary	: Salman Haider
Home Secretary	: K. Padmanabhiah
Defence Secretary	: K.A.Nambiar
Finance Secretary	: S. P. Shukla
I&B Secretary	: Bhaskar Ghosh
Commerce Secretary	: Tejinder Khanna
Advisor to the Defence Minister	: Dr. A.P.J. Abdul Kalam
Secretary-General, Lok Sabha	: K. C. Rastogi
Secretary-General, Rajya Sabha	: Ms Rama Devi
Secretary General, Intl. Civil Aviation Organisation	: Dr. S. S. Sidhu
Secretary-General, National Human Rights Commission	: R. V. Pillai
Chairman, National Human Rights Commission	: Ranganath Misra
Chairman, Press Commission	: Justice R. S. Sarkaria
Chairman, Law Commission	: Justice M.H. Kania
Chairman: MRTI Commission	: Justice A. N. Verma
Chairman, Atomic Energy Commission	: Dr. R. Chidambaram
Chairman, ISRO	: Dr.Kasturi Rangan
Chairman, UPSC	: Mrs Rose Millian Bathew
Chairman, National Commission for Minorities	: Mohammed Sardar Ali Khan
Chairman, University Grants Commission	: Ms. Armaity Desai
Chairman, Economic Advisory Council	: Dr. Bimal Jalan
Chairman, National Commission for SC&ST	: H.Hanumanthappa
Chairman,(5th) Pay Commission	: Justice S.R.Pandian
Chairman, Indian Council of Social Research	: Prof. G.Ram Reddy
Chairman, Air India & Indian Airlines	: Russi Mody
Chairman, Airports Authority of India	: Air Vice Marshal H.M.Shahul
Chairman, Unit Trust of India	: S. A. Dave
Chairman, Central Board of Direct Taxes	: N. Rangachary
Chairman, Central Board of Excise and Customs	: Tarun Roy
Chairman, Securities & Exchange Board of India	: D.R.Mehta
Chairman, Foreign Exchange Regulation Board	: A. C. C. Unni
Chairman, Life Insurance Corporation of India	: J.S.Salunkhe
Chairman, General Insurance Corporation of India	: K.C.Mittal
Chairman, Industrial Finance Corporation of India	: K.D. Agarwal
Chairman, Damodar Valley Corporation	: Badal Sengupta
Chairman, Company Law Board	: S.Balasubramanian
Chairman, State Bank of India	: P.G. Kakodkar
Chairman, Science Advisory Council	: Prof. C. N. R. Rao
Chairman, Electronics Commission	: P. S. Deodhar
Chairman, Telecom Commission	: N. Vittal
Chairman and Managing Director, HMT	: M. R. Naidu
Chairman, National Industrial Dev. Corpn.	: R. C. Bajpai
Chairman, State Trading Corporation	: S. C. Vaish
Chairman, Staff Selection Commission	: S. C. Mittal
Chairman, Bar Council of India	: R. Muthukrishnan
Chairman, State Farms Corporation of India	: Dr. Krishnan Bir Choudhary
Chairman, HUDCO	: K.K.Bhatnagar
Chairman, Railway Board	: Gyanendra Kumar Khare
Chairman, Steel Authority of India	: M. R. R. Nair
Chairman-cum-MD, ITDC	: Yogesh Chandra
Chairman and M.D., Shipping Corporation of India	: R. Vasudevan

Chairman, Trade Fair Authority of India	Moosa Raza
Chairman and M.D., Oil & Natural Gas Commission	B.C.Bora
Chairman and M.D, Gas Authority of India	K.K.Kapur
Chairman and M.D, NBCC	A.K. Sarkar
Chairman, Central Water Commission	M. S. Reddy
Chairman, Indian Oil Corporation	R.K.Narang
Chairman, Hindustan Petroleum Corporation	P. Ramakrishnan
Chairman, Central Board of Film Certification	Shakthi Samantha
Chairperson, Children's Film Society of India	Jaya Bachan
Chairman, National Film Development Corporation	D. V. S. Raju
Chairman, National Book Trust	Dr. Sukumar Azhikode
Chairman, Sahitya Akademi	Dr. U. R. Anantamurthy
Chairman, Sangeet Natak Akademi	Jamshed J. Bhabha
Chairman, Lalit Kala Akademi	Ramnivas Mirdha
Chairman, National Dairy Development Board	Dr. Verghese Kurian
Chairman, Rubber Board	K.J. Mathew
Chairman, Coir Board	K. George Joseph
Chairman, Tea Board	Sujeet S. Ahuja
Chairman, Coffee Board	Philipose Mathai
Chairman, Spices Board	K.B. Pillai
Chairman, Coconut Development Board	Dr. M. Aravindakshan
Chairman, Tobacco Board	P. P. Williams
Chairman, Food Corporation of India	Prabhat Kumar
Chairman, NABARD	P. Kotaiah
Chairman, Central Electricity Authority	Y. P. Gambhir
Chairman & M.D., ICICI	N. Vaghul
Chairman, Khadi & Village Ind. Commission	Nawal Kishore Sharma
Chairman & M.D., IDBI	S. H. Khan
Chairman, Bharat Business International (BBI)	S. V. S. Raghavan
Chairman, National Housing Bank	K. S. Sastri
Chairman, National Agri. Co-op. Marketing Fed. (NAFED)	B.M. Sarin
Chairman, Central Board of Secondary Education	Ms D. M. De Ribello
Chairman, Inst. of Chartered Accountants of India	K. M. Aggarwal
Chairman, Indian National Science Academy	Dr. P. N. Tandon
Chairman, National Productivity Council	M. C. Gupta
Chairman, Indian Council of Historical Research	Prof. Ravinder Kumar
Chairman, Ind. Council of Social Sciences Research	Prof. G. Ram Reddy
Chairman, Indian Council of Philosophic Research	Prof. R. Balasubramanian
Chairman, Press Trust of India	C.R. Irani
Chairman, Press Institute of India	Naresh Mohan
Chairman, Audit Bureau of Circulation	Mrs. Saroj Goenka
Chairman, Central Administrative Tribunal	Justice Satish Chandra Mathur
Chairman, National Stock Exchange	S. H. Khan
Chairman, All India Council of Technical Education (AICTE)	Prof. S. K. Khanna
Chairman, Marine Products Exports Devt. Authority	K.B. Pillai
Chairman and M.D., Export-Import Bank of India	Ms Torjani Vakil
Chairperson, National Commission for Backward Classes	Justice (Rtd.) R. N. Prasad
CMD, Industrial Reconstruction Board of India	B. K. Taparia
Chief Vigilance Commissioner	T. U. Vijayasekharan
Director General, Central Eco. Intelligence Bureau	K.P. Anand
Director, Central Bureau of Investigation (CBI)	K. Vijaya Rama Rao
Director-General, National Security Guard.	Dr. S. Subramaniam
Director General, CISF	P. S. Bhinder
Director General, Ord. Factories & Chairman of Board	V. M. Bhandarkar
Director, Intelligence Bureau	D.C.Pathak

Director, Research and Analysis Wing (RAW)	A. S. Syali
Director, NCERT	Dr. K. Gopalan
Director-General, Bureau of Indian Standards	R. K. Mathur
Director-General, Foreign Trade	C. K. Modi
Director-General, ICMR	Dr. G. V. Satyavati
Director-General, ICAR	Dr. R.S. Paroda
Director-General, CSIR	Dr. Raghunath A Mashelkar
Director General, Narcotics Control Bureau	H.P.Kumar
Director General, Border Security Force	Arun Bhagat
Director-General, All India Radio	Sashikant Kapoor
Director-General, Doordarshan	Rathikant Basu
Director General & Census Commissioner	A.R.Nanda
Director, Film & Television Institute of India	Vijay B. Chandra (Ag)
Director, VSSC	Dr. S. Srinivasan
Director General, Narcotics Control Bureau	Joginder Singh
Director General, Anthropological Survey of India	Dr. Kumar Suresh Singh
Director General, Meteorology	Dr. R. P. Sarkar
Director-General, Civil Aviation	M. P. Sivaraman
Director-General, Rashtriya Rifles	Lt. Gen. Satish Nambiar
Ambassador to USA	Sidhardha Shankar Ray
Ambassador to Russia	Rohen Sen
Ambassador to China	Chandrasekhar Dasgupta
High Commissioner to Britain	Dr. L. M. Singhvi
India's Permanent Representative at UN	Prakash Shah
President, FICCI	A.K. Rungta
President, ASSOCHAM	S.M. Datta
President, FIEO	P.K. Shah
President, Indian Newspaper Society	B.S.Adityan
President, Confederation of Indian Industry	Rajive Kaul
President, Editors' Guild of India	D.N.Bezboruah
President, National Consumer Disputes Redressal Commission	V.B.Eradi
President, Indian Academy of Science	Prof. A. K. Sharma
Registrar of Newspapers in India	P. B. Ray
Surveyor-General of India	Maj. Gen. Surinder Mohan Chadha

Terms in British and American English

British	American		
wallet	billfold	car silencer	muffler
reverse-charge call	collect call	unit trust	mutual fund
nappy	diaper	mileometer	odometer
curtains	drapes	chiropracist	podiatrist
chemist, pharmacist	druggist	estate agent	realtor
tap	faucet	jumble sale	rummage sale
wing of a car	fender	card game of patience	solitaire
battery-operated torch	flashlight	second-year student	sophomore
leave of absence,		braces	suspenders
as from military duty		drawing pin	thumbtack
hire purchase	installment plan	market garden	truck farm
junior hospital doctor,		dinner jacket	tuxedo
houseman	intern	ex directory	unlisted
paraffin	kerosene	waistcoat	vest
undertaker, funeral director	mortician	ex serviceman	veteran
		postcode	zip code

Assassinations since 1901

Who		Where	By Whom	When
McKinley, William	US President	Buffalo, N.York	Leon Czolgosz	6-9-1901
Rasputin	Russian Monk	Russia	A group of noblemen	31-12-1916
Cermak, Anton J.	Mayor of Chicago	Miami, Fla	Giuseppe Zangara	15-2-1933
Dollfuss, Engelbert	Chancellor of Austria		A group of Nazis raiding the chancellery	25-7-1934
Long, Huey P	US Senator	Baton Rouge, La.	Dr. Carl Austin Weiss	8-9-1935
Gandhi, Mahatma	India's 'Father of the Nation'	Delhi	Hindu extremist Nathuram Godse	30-1-1948
Abdullah ibn-Hussein	King of Jordan	Jerusalem	Young Palestinian Arab	20-7-1951
Somoza Garcia, Anastasio	Nicaraguan President	Panama Canal Zone	Rigoberto Lopez Perez	21-9-1956
Lumumba, Patrice	Former Premier of the Congo (now Zaire)	Katanga Province	Probably by followers of President Joseph Kasavubu	17-1-1961
Trujillo Molina Rafael	Dictator of the Dominican Republic	Near Ciudad Trujillo (Santo Domingo)	An unknown assailant	30-5-1961
Evers, Medgar	American civil rights leader	Jackson, Miss.	Byron De La Beckwith	12-6-1963
Ngo Dinh Diem	South Vietnam President	Saigon	A military coup	2-11-1963
Kennedy, John F	US President	Dallas, Tex.	Lee Harvey Oswald	22-11-1963
Malcolm X	American civil rights leader	New York City	Black Nationalists	21-2-1965
King, Martin Luther, Jr.	American civil rights leader	Memphis, Tenn.	James Earl Ray	4-4-1968
Kennedy, Robert F	US senator and Presidential candidate	Los Angeles, Calif	Sirhan Sirhan a Jordanian-born Arab immigrant	5-6-1968
Faisal,	King of S. Arabia	Riyadh	Faisal ibn Musad	25-3-1975
Mountbatten, Louis	Member of the British royal family	Coast of Ireland	Members of the Provisional Irish Republican Army, on a fishing boat	27-8-1979
Somoza Debayle Anastasio	Former Nicaraguan President	Asuncion, Paraguay	An ambush	17-9-1980
Sadat, Anwar el	Egyptian President	Cairo	Muslim fundamentalists	6-10-1981
Gemayel, Bashir	Newly elected President of Lebanon	Beirut	Unknown assailants	14-9-1982
Aquino, Benigno S	Philippine political opposition leader	Manila	Allegedly by Rolando Galman, an ex-convict	21-8-1983
Gandhi, Indira	Prime Minister of India	New Delhi	Two Sikh bodyguards	31-10-1984
Palme, Olof	Prime Minister of Sweden	Stockholm	an unknown assailant	28-2-1986
Moawad, Rene	Newly elected President of Lebanon	Beirut	unknown assailants	22-10-1989
Gandhi, Rajiv	Former Prime Minister of India	Near Madras	Allegedly by a woman with explosives strapped to her waist	21-5-1991
Premadasa, Ranasinghe	President of Sri Lanka	Colombo	During May Day celebration	1-5-1993
Rabin, Yitzhak	Prime Minister of Israel	Tel Aviv	suicide bomber Jewish far-right extremist Yigal Amir	4-11-1995

Economic Glossary

Administered prices: Prices which are set consciously by a single decision-taking body, eg. a monopoly firm, a cartel or a government agency rather than being determined by the free play of market forces.

Advanced Countries: States with the highest levels of national income per head. Unlike the developing countries, they have become industrially advanced.

Aggregate demand: The total demand for goods and services in the economy.

Aggregate supply: The total supply of goods and services in the economy available to meet aggregate demand.

Arbitrage: Practice of switching short-term funds from one investment to another in order to obtain the best return. Also the act of buying at the lower price and reselling at the higher price.

Average cost: production cost per unit of output produced.

Average propensity to consume (APC): For the economy, this is the total value of expenditure on consumption, goods and services divided by the value of national income.

Average propensity to save (APS): The proportion of income of an individual or the whole economy which is not spent on consumption of goods and services, ie, which is saved. It is 1-APC.

Balance of payments: A tabulation of the credit and debit transactions of a country with foreign countries and international institutions, drawn up and published in a similar form to the Income and Expenditure Accounts of companies.

Balanced growth: A particular form of growth process of the economy in which all the main economic aggregates-national income, consumption, stock of capital, employment-grow at the same percentage rate over time.

Barter: Direct exchange of goods and services without the use of money.

Base period: The time period used as the base from which to calculate an index number or a growth rate.

Bill of exchange: Here, the drawer makes an unconditional undertaking to pay to the drawee a sum of money at a given date, usually three months ahead.

Birth rate: The average number of live births occurring in a year for every 1000 population.

Black economy: That part of a country's

economic activity which is not recorded in the national income accounts, although it does involve the production of goods and services.

Budget: An estimate of income and expenditure for a future period as opposed to an account which records financial transactions.

Bullion: Gold, silver or other precious metal in bulk, ie, in the form of ingots or bars rather than in coin.

Buyer's Market: A market in a situation of excess supply. Buyers are relatively scarce and are able to obtain favourable terms as sellers compete with each other.

Capital: The stock of goods which are used in production and which have themselves been produced. Fixed capital consists of durable goods such as buildings, plant and machinery, circulating capital consists of raw materials, semi-finished goods, components, etc.

Capital formation: Net investment in fixed assets, ie, additions to the stock of real capital.

Capital stock: The total amount of physical capital existing at any one time in a firm, industry or economy.

Capitalism: The politico-economic system, based on private property and private profit, censured by Karl Marx for its exploitation of labour.

Cash flow: The flow of money payments to or from a firm.

Census: A count, usually providing social, demographic or economic information, of the total population of the group studied.

Cheque: An order written by the drawer to a commercial bank or central bank to pay on demand a specified sum to the bearer, a named person or corporation.

Clearing house: Any institution that settles mutual indebtedness between a number of organisations.

Closed economy: An economy assumed not to take part in international trade so that it has no exports or imports.

Commission: A percentage or the value of a transaction taken by an intermediary as payment for his services, eg: Broker's commission, estate agency's commission

Commodity: A particular type of raw material or primary product such as tea, coffee, wool, cotton, rubber, tin, jute and furs.

Complementary demand: Two or more products are said to be complementary in demand when an increase in the price of one is

generally associated with a decrease in demand for the other.

Composite demand: The demand for a product which arises from several uses of the product.

Consumer credit: Short-term loans to the public for the purchase of specific goods. Consumer credit takes the form of credit by shopkeepers and other suppliers, credit accounts, personal loans and hire purchase.

Consumer good: A commodity bought by households for use in consumption.

Consumer surplus: The excess of the amount a consumer is prepared to pay for a good over the amount he actually does pay for it.

Consumer's sovereignty: This is said to exist when resources are allocated in line with consumers' preference as opposed to say, state direction.

Consumption: The total expenditure in an economy on goods and services which are used up with a specified, usually short, period of time, generally a year; the actual physical process of using a good or service.

Convertibility: A currency is said to be convertible when it may be freely exchanged for another currency or gold.

Cost: Opportunity cost concept-value of the alternatives or other opportunities which have to be foregone in order to achieve a particular thing. Outlay concept-total money expenditure or outlays necessary to achieve it.

Credit: Granting the use or possession of goods and services without immediate payment. There are three types of credit: (a) consumer credit; (b) Trade credit and (c) Bank credit.

Currency: Notes and coins that are the 'current' medium of exchange in a country.

Dear money: High rates of interest. A 'dear money policy' carried out by a monetary authority would be one of restricting the money supply in the interest of reducing inflation.

Death-rate: The number of deaths occurring in any year for every 1000 of the population.

Debt: A sum of money or other property owned by one person or organization to another.

Deficit: An excess of liabilities over assets, or of an expenditure flow over an income flow.

Deflation: A reduction in the general level of prices.

Demand: The willingness and ability to pay a sum of money for some amount of a particular good or service.

Depression: A severe trough in the business cycle where there is widespread and sustained unemployment.

Derived demand: The demand for a factor

of production is said to be a derived demand.

Devaluation: The reduction of the official rate at which one currency is exchanged for another.

Developing country: A country that has not yet reached the stage of economic development characterised by the growth of industrialization, nor a level of national income sufficient to yield the domestic savings required to finance the investment necessary for further growth.

Direct taxation: Taxation on individuals or companies which is paid directly by them or through their employer to the Inland Revenue. In general, direct taxation is levied on wealth or income.

Dishoarding: The running down of stocks of goods or money which have been accumulated by hoarding.

Disinflation: The reduction or elimination of inflation.

Disposable income: Personal income including transfer payments after all direct taxes have been deducted.

Division of labour: The specialisation of workers in particular parts or operations of a production process.

Double taxation: The situation in which the same tax-base is taxed more than once.

Dumping: The sale of a commodity on a foreign market at a price below marginal cost.

Duopoly: The market situation in which there are only two sellers of a particular good or service.

Duopsony: the market situation in which there are only two buyers of a particular good or service.

Durable goods: Consumer goods like washing machines, motor cars TV sets, which yield services or utility over time rather than being completely used up at the moment of consumption.

Earnings: The return for human efforts, as in the earnings of labour and the earnings of management.

Economic development: The process of growth in total and per capita income of developing countries, accompanied by fundamental changes in the structure of their economies.

Economic good: Anything, whether a physical commodity or a service which yields utility and which could command a price if bought or sold on a market.

Economies of scale: These exist when expansion of the scale of productive capacity of a firm or industry causes total production costs to increase less than proportionately with output. As a result, long run average costs of production fall.

Elasticity: The measure of degree of response

ness of one variable to changes in another.
Employment full: The economy is said to be full employment when everyone who wishes work at the going wage rate for his type of work is employed but because it takes time to switch from one job to another there will at any moment be a small amount of unemployment.

Entrepreneur: The name given in economic theory to the owner-manager of a firm.

Equilibrium: A state in which forces making change in opposing directions are perfectly balanced so that there is no tendency to change.

Equilibrium price: the price at which a market is in equilibrium.

Estate duty: A tax payable on a person's property at his death and before it passes into the hands of others.

Exchange rate: The price (rate) at which one currency is exchanged for another currency, for gold or Special Drawing Rights.

Excise duties: Taxes levied upon goods produced for home consumption.

Exports: The goods and services produced in one country which are sold to another in exchange for the second country's own goods and services, for gold and foreign exchange or settlement of debt.

Factors of production: According to Marshall, these are 'the things required for making a commodity'. These inputs are grouped into land, labour and capital.

Final products: Goods used by consumers for consumption, rather than by firms as inputs in the process of production.

Finance: The provision of money when and where required. Finance may be short term (usually upto one year) medium term (usually over one year upto 5 to 7 years) and long term.

Fiscal policy: That part of government policy which is concerned with raising revenue through taxation and deciding on the level and pattern of expenditure.

Fixed costs: Costs which in the short run do not vary with outputs. These costs are borne even if no output is produced.

Floating debt: Generally, any short-term debt, specifically, that part of the national debt that consists of short-term borrowing.

Foreign aid: The administered transfer of resources from the advanced countries for the purpose of encouraging economic growth in the developing countries.

Foreign exchange: Claims on another country held in the form of the currency of that country or interest-bearing bonds.

Foreign investment: The acquisition by governments, institutions or individuals in one

country of assets in another.

Free market: A market in which the forces of supply and demand are allowed to operate unhampered by government regulation or other interference.

Free trade: The condition in which the free flow of goods and services in international exchange is neither restricted nor encouraged by direct government intervention.

Fringe benefits: Rewards for employment over and above the wages and salaries paid.

Giffen goods: Goods which do not obey the law of demand, viz., that less is bought as price rises.

Gift tax: A levy on the value of certain property given away to others and paid by the donor.

Gold standard: A country said to be on the gold standard when its central bank is obliged to give gold in exchange for any of its currency presented to it.

Gross Domestic Product (G.D.P.): A measure of the total flow of goods and services produced by the economy over a specified time period, normally a year. It is obtained by valuing outputs of goods and services at market prices and then aggregating.

Gross National Product (G.N.P.): GDP plus the income accruing to domestic residents arising from investment abroad less income earned in the domestic market accruing to foreigners abroad.

Hoarding: The withdrawal of money from active circulation by accumulating it rather than spending it on consumption or buying assets.

Homogeneous products: 'When the outputs of different firms are undifferentiated and perfect substitutes in the eyes of consumers then the product is said to be homogeneous.'

Household: An economic unit which is defined for the purpose of the census of population as a single person living alone or a group voluntarily living together.

Human Capital: The skills, capacities and abilities possessed by an individual which permit him to earn income.

Imports: The flow of goods and services which enter for consumption into one country and which are the products of another country.

Inactive money (Idle money): That portion of the total stock of money or money supply (currency plus bank deposits) in existence at any one time which is not being used to finance current transactions or being lent out on the money market.

Income: The flow of money or goods accruing to an individual, a group of individuals; a

firm or the economy over some time period.

Income tax: A tax levied on income. It is progressive in its effect.

Inflation: A process of steadily rising prices resulting in diminishing purchasing power of a given nominal sum of money.

International trade: The exchange of goods and services between one country and another.

Investment: Strictly defined, investment is expenditure on real capital goods. However, in everyday language, it is also taken to mean purchase of any asset, or indeed the undertaking of any commitment which involves an initial sacrifice followed by subsequent benefits.

Labour: One of the primary factors of production, 'labour' is the collective name given to the productive services embodied in human physical effort, skill, intellectual powers, etc.

Labour-intensive: a process or product is called labour-intensive if it uses proportionately more labour in its production than the other factors of production.

Laissez-faire: The principle of non-intervention of government in economic affairs.

Land: Land is taken to mean not simply that part of the earth's surface not covered by water but also all the free gifts of nature such as minerals, soil fertility, etc.

Legal tender: That which must be accepted in legal settlement of a money debt.

Letter of credit: An order from a bank to a bank abroad authorizing payment to a person named in the letter of a particular sum of money or upto a limit of a certain sum.

Loan: the borrowing of a sum of money by one person, company, government or other organization from another.

Long-run: In price theory, the long-run is defined as the time period long enough for the firm to be able to vary the quantities of all its factors of production rather than just some of them.

Marginal cost: The increase in cost resulting from a small increase in the rate of output of a good or service.

Marginal product: The increase in total output resulting from a small increase in one factor of production, all other factors held constant.

Marginal utility: The increase in total utility of consumption of a good which results from increasing the quantity of the good consumed by one unit.

Market: A market exists when buyers wishing to exchange money for a good or service are in contact with sellers wishing to exchange goods or services for money.

Market forces: The forces of supply and

demand which together determine the price at which a product is sold and the quantity which will be traded.

Mixed economy: An economy which contains elements of both private and state enterprise.

Money: Anything which is generally acceptable as a means of settling debts.

Money in circulation (active money): Money which is being used to finance transactions.

Money market: The financial institutions that deal in short-term securities and loans of gold and foreign exchange.

Monopoly: A market situation in which a single seller controls the entire output of a particular good or service.

Monopsony: The situation in which there is only a single buyer in a market.

National debt: The total outstanding borrowings of the central government excluding foreign debt.

National income: A measure of the magnitude of the total flow of goods and services produced in an economy over a specified period of time.

Net domestic product: Gross domestic product less depreciation.

Non-price competition: Policies which a seller may use to attract customers away from rival sellers, but which do not involve price reduction. The most common of such policies are advertising, use of free gift schemes, etc.

Oligopoly: A type of market in which there is a relatively high degree of concentration, a small number of firms account for a large proportion of output, employment, etc.

Open market operation: The purchase or sale of securities by the Central bank to increase or decrease the supply of funds in the capital market and so interest rates and the volume of credit.

Optimum: The best value which something can take with reference to some particular objective.

Per capita income: The total income of a group divided by the number of people in the group.

Population: The number of people living in any defined area.

Price: the quantity of money which must be exchanged for one unit of a good or service.

Price discrimination: Practice of charging different prices to different consumers for the same goods, where the price differences reflect differences in cost of supply.

Prime costs: Variable costs plus administrative and other fixed costs that can be avoided in the short or long term if there is no production, even while the firm remains in business.

Private sector: That part of the economy under direct government control.

Producer's surplus: The excess of the total payments of a supplier of a good or service over what he would require merely to induce him to continue to maintain his current level of supply.

Productivity: A measure of the rate at which output flows from the use of given amount of factors of production.

Profit: a) normal profit-income which accrues to the entrepreneur i.e., the residual left after payment of all opportunity costs to the factors he employs; b) Super-normal profit-profit above and above normal profit, also referred to as excess profit.

Progressive tax: A tax which takes an increasing proportion of income as income rises.

Proportional tax: A tax which is levied at the same rate, at all income levels.

Public Sector: The combination of central government, local authorities, the nationalised industries and public corporations.

Public utility: an enterprise producing and supplying one of a particular set of outputs, namely electricity, transport, gas, telephones, water supply.

Rate of interest: The price of borrowed money. It is the difference between what is lent and what must be repaid after a specified period, expressed as a proportion of the amount lent.

Real income: Income measured in terms of real goods and services it can buy. It can be calculated by dividing money income by a suitable index of prices.

Recession: A downturn in the business cycle characterized by two successive quarters of negative rates of growth in the real GNP.

Regulation: Government policy that monitors and controls the economic activities of various types of private enterprises.

Resale price maintenance (RPM): The practice whereby a manufacturer requires the distributors of his product to resell at certain prices, or at not less than minimum prices, which he has set for his products.

Reserve currency: A currency which governments and international institutions are required to hold in their gold and foreign exchange reserves and which finances a significant proportion of international trade.

Sales tax: A tax levied as a proportion of the retail price of a commodity at the point of sale.

Saving: Income which is not spent on consumption is, by definition, saved.

Scarcity: A condition where there is less of something the people would like to have if it were nothing to buy.

Selling costs: Costs incurred in marketing and distributing a product, including the cost of advertising, sales promotion, packaging, salesmen, etc.

Services: Consumer or producer goods which are mainly intangible and often consumed at the same time as they are produced.

Short-run: A time period within which a firm is not able to vary all its factors of production.

Soft-currency: A currency whose exchange rate is tending to fall because of persistent balance of payments deficits or because of the building up of speculative selling of the currency in expectation of a change in its exchange rate.

Soft-loan: A loan bearing either no rate of interest or an interest rate which is below the true cost of the capital lent.

Specie points: The limits between which the exchange rate between two currencies on the gold standard fluctuates.

Speculation: Buying and selling with a view to buying and selling at a profit later when prices have changed.

Subsidy: A payment by a government agency to producers of goods, intended to make prices lower than they otherwise would be.

Substitutes: Two goods are substitutes if a rise in the price of one causes an increase in demand for the other.

Supply: The flow of a good or service into a market which is available to meet demand.

Tariffs: Taxes imposed on commodity imports.

Taxation: A compulsory transfer of money (or occasionally of goods and services) from private individuals, institutions or groups to the government.

Technology: The sum of knowledge of the means and methods of producing goods and services.

Terms of trade: The ratio of the index of export prices to the index of import prices.

Trade cycle: Regular oscillations in the level of business activity over a period of year.

Unemployment: A situation which exists when members of the labour-force wish to work but cannot obtain a job.

Utility: The satisfaction, pleasure or fulfilment of needs derived from consuming some quantity of a good.

Variable costs: Costs which vary directly with the rate of output. Eg: labour costs, raw material costs, etc.

Wealth: The wealth of an individual is his total stock of tangible or intangible possessions which have a market value.

Stop Press

Year for the Eradication of Poverty: The United Nations have declared 1996 the International Year for the Eradication of Poverty. Its objective is to create "a greater awareness of the fact that the eradication of poverty is fundamental to reinforcing peace and achieving sustainable development" and to catalyze concrete actions resulting in a "distinct and significant contribution to the efforts to eradicate poverty".

Five new members for Security Council: The General Assembly have elected South Korea, Chile, Egypt, Guinea-Bissau and Poland to the Security Council (w.e.f. Jan.1, 1996). They replace Oman, Rwanda, Argentina, the Czech Republic and Nigeria.

Appointments:

Secretary General, NATO: Javier Solana (Spain)

PM, Israel: Shimon Peres
PM, Grenada: Keith Mitchell
PM, Dominica: Edison James
PM, Trinidad and Tobago: Basdeo Panday
PM, Croatia: Zlatko Matesa
PM, Portugal: Antonio Guterres
PM, Haiti: Claudett Werleigh
PM, Estonia: Tilt Vahi (resigned 12/10/1999)
PM, Tanzania: Fredrick Sumaye
PM, Latvia: Ziedonis Ceveris
PM, Sweden: Goran Persson to take over in March, 1996.
PM, Bangladesh: Parliament has been dissolved. Khaleda Zia is made the head of an interim government.
President, Poland: Alexander Kwasniewski
President, Tanzania: Benjamin Mkapa
President, South Korea (P.244): Read as 'Young Sam'



On December 8, 1995, Prime Minister P. V. Narasimha Rao handed over the reconstructed Banegaon village in Latur to Maharashtra Governor Dr. P. C. Alexander. The village, totally destroyed in the 1993 earthquake, was rebuilt by *Malayala Manorama* and its readers. In all, 163 new houses have been rebuilt and all amenities provided.

PART ONE



SCIENCE AND TECHNOLOGY

Environmental Impact Of Economic Globalisation

The new world order based on the logic of globalisation was legally established on Jan. 1, 1995 with the coming into being of the World Trade Organisation to implement the final agreements of the Uruguay Round of Gatt.

In India, our experiment with globalisation had begun four years earlier with the new economic policy of 1991 as a result of the World Bank/IMF Structural Adjustment Programme.

While the international financial and trade organisations coerce and push the government into a blind and indiscriminate experiment with globalisation, the Indian people are engaging in an enlightened response to put in its ecological and social globalisation context. In region after region where foreign investment is diverting local resources from survival needs of local people to the limitless appetite of global market people are putting investment to the test of ecological and social accountability. They are also redefining the principles of governance.

The rule of the World Bank and WTO have implied rule by super-state institutions serving the one sided interest of commerce and beyond the democratic control of people. As the state withdraws from environmental and social regulation in the "free-trade" era, local communities are getting organised to regulate commercial activity by asserting their environmental rights to natural resources -

land, water and biodiversity and the democratic right to decide how these resources are used.

This trend towards localisation has in fact been born along with the trend towards globalisation. If globalisation is the corpora-

driven agenda for removing all barriers, localisation is the people driven agenda for introducing ecological limits and social responsibility in the process of globalisation.

The ecological and democratic response to localisation has built into it an environmental component of control and ownership of local resources and an economic order to promote and accelerate

the growth of the global economy and international trade.

Localisation does not imply autarchy or isolation. It involves subjecting the logic of globalisation to the test of sustainability, democracy and justice in each concrete instance of foreign investment. It also involves reclaiming the state to protect people's interest and not reduced to being a mere instrument for foreign investors. The contest between the transnational corporations, the force behind globalisation and the citizens and local communities, the force behind localisation, seems to be getting most vividly played on the Indian soil.

The largest corporations of the world have found new investment opportunities in India.



Since 1991, under a combination of strong arm tactics of the 301 clauses of the U.S. Trade Act, the IMF/World Bank pressures for liberalisation and the government's new economic policies that put the interests and rights of the citizens of India. And in each sector, the biggest multinational corporation has been forced to recognise that it is the clearance from the local people, not one from the government that will allow it set up its operations on Indian soil. Cargill, the world's largest grain trader and one of the biggest seed companies, Dupont, the world's largest chemical company, Bachtel, the world's largest construction company, and General Electric, the world's largest power company have all arrived in India in the new era of globalization which makes the entire world open for investments to these corporations. However, each of these giants has been challenged by the Indian people, and people's challenge has forced the government to review its role as a blind promoter of foreign investment and remember its role in the protection of people's rights and the environment.

People against TNC's and TRIPs

One of the most important people's movement in India is the one against the TRIPs agreement of GATT. The Trade-related intellectual property rights (TRIPs) agreement creates new sites of investments in the living resources of the planet - plants, animals, microorganisms and even human genetic material. The framework of TRIPs was drafted by a coalition of transnational companies. As James Enyart of Monsanto has stated:

Besides selling our concepts at home we went to Geneva where we presented (our) document to the staff of the GATT Secretariat. We also took the opportunity to present to the Geneva based representatives of a large number of countries.... what I have described to you is absolutely unprecedented in GATT. Industry has identified a major problem in international trade. It crafted a solution, reduced it to a concrete proposal and sold it to our own and other governments.... The industries and traders of world commerce have played simultaneously the role of patients, the diagnosticians and the prescribing physicians.

These companies have pushed for intellectual property protection in GATT "to prevent extensive losses to worldwide industry due to inadequate and ineffective national protection of intellectual property". The Third World has been repeatedly accused of "piracy" by the industrialised countries. In a 1986 survey U.S. companies stated that they

lose U.S. \$23.8 billion due to inadequate or ineffective protection of intellectual property. The U.S. agrochemical industry estimates that it loses over \$200 million in sales per year from inadequate and ineffective patent protection. The US pharmaceutical industry claims it has lost US\$ 2545 million. They do not assess how much the Third World loses due to their claiming Third World bioresources and Third World Knowledge as their "intellectual property" as in the case of neem patents, and patents on micro organisms, plant based medicines and seeds. As the team at RAFI, the Rural Advancement Foundation International has shown, if the contribution of Third World biodiversity and the innovation of peasants and tribals is taken into account the roles of the pirate are dramatically reversed. The U.S. is then found to owe US \$202 million in royalties for agriculture and US \$5097 million for pharmaceuticals to Third World countries.

Ironically, it is the companies that accuse the Third World of piracy who are themselves engaged in large scale piracy of the biological wealth and intellectual heritage from the Third World. Thus Pfizer, Bristol Myers and Merck who are on the Intellectual Property Committee which was responsible for initiating and successfully introducing IPRs into GATT have patents on bio-materials collected from the Third World without any permission or payment of royalties to the original owners of the biological material.

The ethical and ecological implication of the TRIPs agreement has created a major peoples movement in India against the IPR clauses of GATT.

The government has so far been unsuccessful in implementing TRIPs in India. The Patent (ordinance) Bill, which would have allowed patents on life, and product patents in medicine and agriculture failed to go through parliament as a result of coordi-

nated action between people's movements and peoples representatives. Meanwhile, the debate on TRIPs is being opened up within WTO through the Trade and Environment Committee to assess the impact of TRIPs on the Environment and on Biodiversity.

On the ground, people are putting forward

Collective intellectual rights are aimed at protecting people's rights to their biological resources including seeds, medicinal plants, and protecting the integrity of their collective heritage

alternatives to IPR's especially in the area of Biodiversity. This includes the Collective Intellectual Rights Movement started on Independence day, 15th August 1993 by the Karnataka Rajya Raitha Sangha, the Research Foundation and the Third World Network. Collective intellectual rights are aimed at protecting people's rights to their biological resources including seeds, medicinal plants, and protecting the integrity of their collective heritage.

While the transnational corporations might have succeeded in getting a TRIPs agreement in the final text of the Uruguay Round, they cannot be all that sure of forcing unethical and unjust IPR systems on people.

Movements against patents on life are growing everywhere, and in India, the "Seed Satyagraha", the movement to conserve indigenous seeds and to protect farmer's rights to seed in response to TRIPs is spreading and gaining strength.

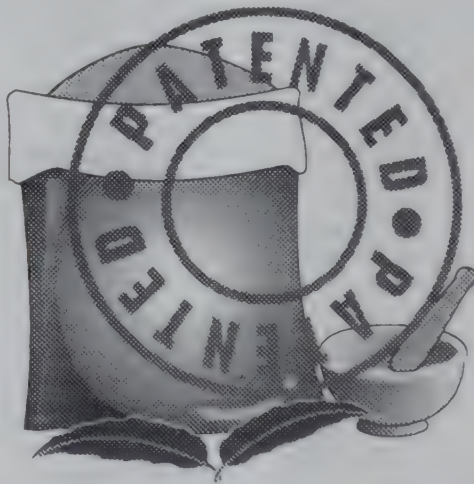
Karnataka farmers against Cargill

Farmers in Karnataka have been spearheading the actions against monopoly rights of TNC's on seed and plant material.

They have been angered and outraged by the TRIPs agreement of GATT which allows seed multinationals monopoly rights on seed either in the form of patents or breeders rights. These monopoly rights are totally illegitimate, given that it is Third World farmers who have selected and improved the diverse crop varieties that seed companies use in their breeding programmes. The monopoly rights are also illegitimate because contrary to all claims of "improvement" of seeds and farmers income, farmers actually lose by shifting to corporate seeds because of the high costs of purchased inputs. Cargill, the world's biggest grain trader and one of the largest seed companies, started to market its sunflower and sorghum seeds in India in 1992. The failure of the Cargill's sunflower seeds led to actions by farmers organisations against the Cargill's offices and processing plant. On 29th December, 1992 over 500 farmers of the Karnataka Rajya Raitha Sangha (KRRS) stormed Cargill's offices in Bangalore,

and served Cargill a 'Quit India' notice. In July 1993, KRRS demolished part of Cargill's seed unit in Bellary. Cargill's sorghum has also failed the farmer economically. If farmers grow Cargill sorghum, they save only Rs 3000 because they do not have to buy any external input. Besides retaining more of their financial wealth, farmers also conserve more of their ecological capital in the form of soil fertility, soil moisture and plant and animal

biodiversity. In addition, they can be free of dependence of multinational corporations with monopoly control over seeds, on chemicals and on markets. The combination of these economic, ecological and political imperatives ushering in a new era of sustainable agriculture. In April, a national alliance for agricultural renewal, ARISE, was launched in Auroville. On 30th May, the KRRS and the Third World Network jointly launched an Institute



Sustainable Agriculture. Central to these initiatives is the philosophy of localisation of sustainable agriculture can only be based on internal inputs, and rights to land. Water and biodiversity which are the primary means of production in agriculture must be locally controlled and locally decided if the natural capital that makes agriculture possible has to be conserved.

Goa against the Dupont

Dupont has been trying to set up a Nylon 6,6 plant in Goa since 1985. The people of Goa had rejected it as an "Unwanted Guest". The state government had also rejected it. The House Committee set up to look at the environmental implications of the Nylon 6,6 plant stated that "it would be an ill-advised move to allow large chemical industries discharge even their 'treated' effluents in our coral reefs and virgin rivers... we have to safeguard our rivers against any conceivable environmental and pollution threat... While deciding on the establishment of large chemical industries in a small, relatively densely populated and socio-economically rich State such as ours, we should consider not only the statistical probability of a possible industrial accident but also the disastrous danger to humans and ecology that may result from s

an accident... It is also imperative to realise that in a tiny State like Goa, any large capital-intensive industry is bound to consume/utilise a very significant percentage of available natural resources and infrastructural facilities, but in turn, contribute negligibly to the local economy".

The Federal Ministry of Environment also refused clearance. However, in mid December, Giza Feketekutty, the U.S. Trade Representative made a special trip to India to put pressure on the Government to give clearance to Dupont. Key officials in the U.S. Government gave hints that Dupont was being treated as a test case. On 1st Jan 1992, the Cabinet cleared the project.

The Dupont Nylon 6,6 Project is for the manufacture of 18,500 tonnes per annum of nylon cord plant with an investment of Rs. 500 crores. It was proposed to be located in the lush green Kerim Plateau, in the heart of Goa.

The people, however, refused to clear it. They formed an Anti-Nylon 6,6 Citizens Committee. People were arrested repeatedly during protests. In October 1994, villages stoned the cars of executives of the Dupont, set the place on fire and damaged the compound wall. After 23 January, 1995, when 23 year old Nilesh Naik was killed, the villagers became even more determined to not allow Dupont to set foot in Goa. Even the Chief Minister has been forced to admit "If the people do not want the project, how can we force it."

Maharashtra against Enron

The Dabhol power project in the verdent Karhan region of Maharashtra has been set by Enron, a Texas based gas and power corporation. Bechtel, the largest construction company in the world, and General Electric, the largest electrical and power corporation.

The Power Purchase Agreement between Dabhol power project and the Government of Maharashtra, was signed on December 8, 1993.

The project has been rejected by the people of Maharashtra and is currently under review. Meanwhile, on 15th May 1995, 400 protestors of the Enron Virodhi Sangharsh Samiti consisting of people from the villages of Anjanod, Rauvi, Veldue, Katawade and Bhorbatla marched into the project site and stopped construction of the Rs. 9000 crore, 2-15 MW power project. For the local people the primary reason for resistance is the take over of their fertile lands. "What can we do with money, with no land? How will we fill our stomachs?" asked Mr. Anant Bhuvad.

Both in the Dupont and the Dabhol project, one of the major reasons for local resistance is the use of the land acquisition act by public agencies to take over village lands for private investors. While the Dabhol power corporation claims to be environmentally friendly because it is gas and oil based and not coal based, the use of fossil fuel does contribute to green house gases. Major increases in nitrogen oxides are expected to be destructive to the productive horticulture of the Konkon belt. Mangoes and other fruits worth billions are expected from these region. The threat to horticulture is a major reason for local protests. In addition, the discharge of hot water from the plant is expected to have destructive impact on fisheries.

But the problems with the Dabhol power project are not just environmental. They are also economic. As Prabir Purkayastha has analysed:

The contours of Enron's Dabhol project are becoming clearer. The government of Maharashtra and the union government are to underwrite all risks of

the project, provide an average of over 40 per cent, guarantee a 90 per cent offtake by shutting down their much cheaper generation and provide various other facilities under threat of penalties. Enron will bring in Rs. 30 crore, own the plant and have very little liabilities. If it reneges, the assets that may be available at that time is all Enron is accountable for. For this dubious privilege, MSEB will have to shell out about Rs. 1,200 crore in the first year of its operation, this cost rising every year by 4 per cent on capital servicing account, inflation, foreign exchange rate variation and increased fuel costs. The Dabhol project is going to be an albatross round the neck of the people of Maharashtra.

This is the reason the project is now under review. It is also the reason that even the Government of India has had to respond strongly to the statement issued by the U.S. Department of Energy that India's failure to honour the agreements related to the Enron project would "jeopardise" other power projects coming up with private funding.

The people's protests against the Dabhol

♦ **Dabhol Enron Power Project with a capacity of 2015 MW and project cost of Rs. 9052 crore was scrapped on August 3, 1995 following the acceptance of review committee report by the Government of Maharashtra**

Power Corporation have forced the Union Power Minister to state that the "U.S. threat is unwarranted at this stage and the Indian Government is not going to act under any pressure from the concern of foreign investors, but it is for the Indian Government to protect national interests"

Opposition to Aquaculture

Prawn farming spread like a cancer in the coastal states of Andhra Pradesh, Tamil Nadu and Orissa as a result of the new economic policies and the establishment of the Marine Products.

Export Development Authority (MPEDA) to provide subsidies to investors. Subsidies were provided by MPEDA to industrialists and investors setting up aquaculture units. Ironically, these subsidies were being introduced precisely at the same time when subsidies to farmers were being removed under the structural adjustment policies.

India's exports of principal agricultural commodities amounted to Rs. 6.2 billion during 1990-91, Rs. 8.1 billion in 1991-92, Rs. 8.9 billion in 1992-93 and Rs. 212 billion in 1993-94.

The most important item exported from India in recent years are marine products accounting for Rs. 1.7 billion in 1992-93 and Rs. 2 billion in 1994.

What these figures hide are the costs born by women through the social and ecological impact of aquaculture for exports. Prawns are the most important species cultivated for exports in intensive shrimp farms with stocking rates of 100,000 to 300,000 prawns per hectare, maintained on artificial feeds and intensive pumping of sea and ground water.

The increased profits from exports of shrimp show up in national and global economic growth figures. However the destruction of local food consumption, of ground water resources, fisheries, agriculture and livelihoods associated with traditional occupations in each of these sectors do not occur in global economic value, it is only experienced locally. As drinking water and liveli-

hood options disappear as a result of intensive shrimp cultivation for exports, it is the women of fishing and farming communities who suffer most and who have resisted the expansion of shrimp farming. As Govindamm of Kurru village puts it "We were displaced from the sea, we went to agriculture for jobs. Now they are building prawn farm on agricultural lands. Salt farms are also being converted to aqua. There too, we will lose labour. Where will we earn our living?" Export of agricultural commodities therefore has severe costs for local ecosystems, local communities and local economies.

In India the most rapid expansion of shrimp farming is in the districts of Nellore (named

after "nelli" (rice) and Thanjavur, the rice bowl in the Cauvery delta. The ecological impact of intensive shrimp cultivation has turned these fertile coastal tracts into graveyards, destroying both fisheries and agriculture.

The prawn farming for exports is a genocidal investment for the farmers and fishing communities. Even for the country, it brings more costs than benefits. Even a prawn farmer admits that the activity is destroying the very basis; Anne Ramoosh of Suvarna Aquaculture states:

As far as aquaculture goes, there seems to be

a mad rush that threatens to kill the goose that lays the golden egg. The accent seems to be on quick buck. It is this blinkered vision that is responsible for the spread of disease and the damage to the ecosystem.

The MPEDA is still trying to cover up the ecocide perpetrated by aquaculturists. Dr. Santhana Krishnan, Joint Director MPEDA continues to state that only marginal land have been converted to prawn farmers. (E.T. 4/6/95) However, remote sensing data clearly shows that in the 1990s prawn farms are spreading in prime agricultural lands.

In Tamil Nadu and Andhra Pradesh, women from fishing and farming communities are resisting prawn cultivation through "satyagraha".

The Grama Swaraj Movement in Tamil Nadu which has been leading the Satyagraha against



shrimp farming, filed a case in Supreme Court to ask for a ban on the reckless spread of aquaculture. On May 9, 1995 on the basis of an expert committee report from NEERI, the Supreme Court passed an interim order banning the conversion of agricultural lands to prawn farms. The NEERI team internalised the environmental costs of destruction of land, water and biodiversity resources and showed that in Andhra Pradesh while the annual earnings from prawn exports were Rs. 1,498 crore, the annual costs due to destruction of natural resources and livelihoods were Rs. 6,305 crore. For Tamil Nadu, the earnings were Rs. 2,80 crore while annual costs were Rs. 4,23 crore.

Local response to globalisation

In the prawn farms of coastal India, at the Dupont project in Goa and the Dabhol/Enron project in Maharashtra, and on farms across the country, local communities are raising a common voice "We will decide the pattern of investment and development" We will determine the ownership and use of our natural resources." As this message resonates in village after village, from one investment site to another, a new environmental philosophy based on democratic decentralisation of control over natural resources is emerging. The pressure of the people is forcing the government to remember its role as protector of the public interest and the country's natural and cultural heritage, not merely the interests of

foreign investors. The tendency towards localisation and deepening of democracy is aimed at taming the excesses of globalisation, including the political excesses of deregulation.

The pattern that seems to be emerging is for environmental governance beyond the centralising state and super-state systems, which work unidirectionally for the corporate interest. Localisation is emerging as an antidote to globalisation and to unrestrained commercial greed.

We need to urgently build on these embryonic visions of a just and sustainable society in a period of globalisation. We need early implementation of the Biodiversity Convention to give rights to biodiversity to local communities.

We need the Panchayati Raj Act to be translated into system of environmental democracy, of "Grama Swaraj" in which local communities decide their fate and the use of their local resources. If we are able to "globalise" these movements for localisation, we will enter the next milenium with a chance for survival. If the forces of globalisation extinguish these stirrings across the length and breadth of India, our country will be engulfed in flames of environmental catastrophes and communal conflicts. Localisation is becoming an imperative for our ecological and social survival.

Dr. Vandana Shiva
Environmentalist, New Delhi

Rice on the rise

Academy of Development Science (ADS), set up in 1980 under Bombay University graduate's volunteer schemes emphasises mobilisation of local resources, conserving traditional rice varieties, rice cloning and genetic bio-engineering. Traditional rice varieties of India are fast disappearing because of cross-breeding and poor conservation measures. Even the predominantly rice growing Konkan region of Maharashtra, where more than 400 varieties existed once, only half-a-dozen are available now. Local varieties can withstand extreme climatic conditions, pests and diseases better than cross-bred ones. The centuries old rice varieties once lost, there is no means to retrieve it. The germplasm of local rice varieties are being conserved at the National Bureau of Plant Genetic Resources, New Delhi, Indira Gandhi Agricultural University, Raipur, Central Rice Research Institute in Cuttack.

ADS has developed cloning technology, which allows multiplication of good seed to raise 40 quintals of paddy in ten months.

Besides, the ability to shift genes from one species to another is revolutionising agriculture and plant breeding. Previously, breeders looking for a gene that confers resistance to a pest, had to restrict their search to wild relatives of the plant. If the relatives didn't have the required gene, the search had to be abandoned. But now, the whole world can be searched for a wanted gene and simply add it to the crop. Additionally, a host of other unwanted genes that are found in the wild relative can also be eliminated.

Agricultural genetic engineering successes have not been as dramatic as in medicine, but experts predict biotechnology in the food processing and agricultural sector will range from \$ 10 billion to \$ 100 billion by 2000.

Universe: As we know

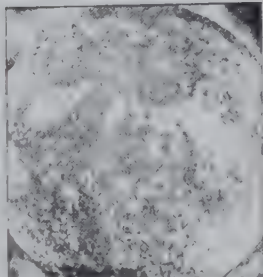
Sun

Diameter: 1,384,000 km (865,000 miles).

Age: 4.5 billion years.

Satellites: 9 planets.

A rather ordinary, middle-age star, the gaseous sun may reach a temperature of 27 million degrees celsius at its core. Its 11-year cycle is now approaching a solar maximum, a period marked by frequent sunspots and flares. On Earth, some radio waves will be disturbed and the amazing sky streamers called Northern Lights will appear.



Mercury

Diameter: 4,849.6 km (3,031 miles).

Moons: none.

Average distance to the sun: 57.6 million km (36 million miles).

Time to orbit the sun: 88 days.

Tiny Mercury, slightly larger than Earth's

moon, races along its elliptical orbit at 176,000 km (110,000 miles) per hour—a speed that keeps it from being drawn into the sun's gravity field. The cratered planet has no atmosphere; days are scorching hot and nights, frigid.

Venus

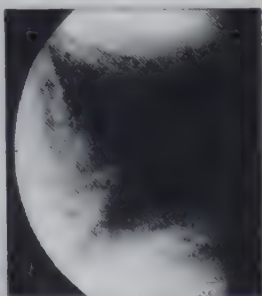
Diameter: 12,032 km (7,520 miles).

Moons: none.

Average distance to the sun: 107.52 million km (67.2 million miles).

Time to orbit the sun: 225 days.

Earth's twin in size and mass, searingly hot Venus is perpetually veiled behind reflective sulphuric-acid clouds. Probes and radar mapping have pierced the clouds and carbon-dioxide environment to reveal flat, rocky



plains & signs of volcanic activity.

Earth

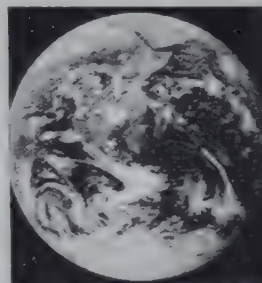
Diameter: 12,739.2 km (7,962 miles).

Moons: 1.

Average distance to the sun: 148.8 million km (93 million miles).

Time to orbit the sun: 365 days.

Uniquely moderate temperature and the presence of Oxygen and copious water make Earth the only planet in the solar system to support life. But as we spoil the surface and atmosphere, we run the risk of becoming the galaxy's most self-destructive creatures.



Mars

Diameter: 6,755.2 km (4,222 miles).

Moons: 2.

Average distance to the Sun: 225.6 million km (141 million miles).

Time to orbit the sun: 687 days.

The Viking probes failed to find any signs

of life. Beneath its thin atmosphere, Mars is barren, covered with pink soil and boulders. Long ago it was more active: the surface is marked with dormant volcanoes and deep chasms where water once freely flowed.

Jupiter

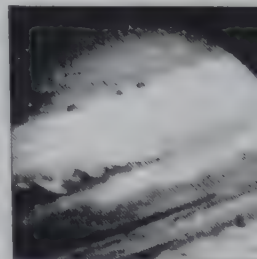
Diameter: 141,968 km (88,730 miles).

Moons: 16.

Average distance to the sun: 772.8 million km (483 million miles).

Time to orbit the sun: 11.9 years.

Two Pioneer space probes photographed the Great Red Spot on the solar system's largest planet. Voyagers 1 and 2 later showed



it is an enormous eddy in the turbulent cloud cover. They also spotted dusty rings, three new moons and volcanoes on the moon Io.

Saturn

Diameter: 119,296 km (74,560 miles).

Moons: 20 or more.

Average distance to the sun: 1,417.6 million km (886 million miles).

Time to the orbit the sun: 29.5 years.

Voyager 1 found that the celebrated rings of the golden giant Saturn are composed of thousands of rippling, spiralling bands just 100 feet thick. The moon Titan has a nitrogen atmosphere and hydrocarbons—the necessities of life—but no signs of Titanites.



Uranus

Diameter: 52,096 km (32,560 miles).

Moons: 15.

Average distance to the sun: 2,852.8 million km (1,783 million miles).

Time to orbit the sun: 84 years.

only planet that lies on its side. One pole, then the other, faces the sun as it orbits. Voyager-2 found nine dark, compact rings around the planet and a corkscrew-shape magnetic field that stretches for millions of miles.

Neptune

Diameter: 49,000 km (30,600 miles).

Moons: 8.

Average distance to the sun: 4,497 million km (2,794.3 million miles).

Time to orbit the sun: 165 years.

Neptune is currently the most distant planet from the Sun (until 1999). It is denser & little smaller than Uranus. Neptune's atmosphere appear blue, with quickly changing white clouds often suspended high above an apparent surface. In that apparent surface were found features, one of which was reminiscent of the Great Red Spot of Jupiter, even

to the counterclockwise rotation expected in a high-pressure system in the southern hemisphere. Atmosphere constituents are mostly hydrocarbon compounds. Neptune emits more energy than it receives from the sun about 2.3 times and the Aurora phenomenon was noticed by Voyager II.



Pluto

Diameter: 3,040 km (1,900 miles).

Moons: 1.

Average distance to the sun: 5,865.6 million km (3,666 million miles).

Time to orbit the sun: 248 years.

This maverick planet: the farthest, the smallest, the darkest, the coldest and arguably the strangest. It follows the most elongated and tilted orbit in the solar system. Its moon, Charon, is nearly half its size - seemingly appears like a bi-planet. NASA using a new infra-red telescope, has learned that Pluto is shrouded in frozen nitrogen-not methane as once thought. Nitrogen makes 78% of the air.

How far is Earth?

Light will travel to the Earth from the following heavenly bodies in the approximate times given:

From the Moon (reflected light) - 1.2 sec.

From the Sun (at perihelion) - 8 min 27.3 sec

From Pluto (variable) - about 6 hours

From nearest star

(excepting the Sun) - 4.28 years

From Rigel - 900 years

From most distant star in the Milky Way - 75,000 years

From nearest major extra galactic body

(Large Magellanic Cloud) - 160,000 years

From Andromeda (limit of naked eye) - 2,200,000 years

Limits of observable horizon

(radio located quasars) - 15,000,000,000 years

The Universe

Human conception of the universe (or space as it is now better known) has been changing with the passage of time.

When the universe was first conceived of as an orderly unit, it was called COSMOS, as opposed to Chaos, and the studies relating to the Cosmos were known as Cosmogony or Cosmology. Today we speak of them as Space and Space Sciences.

A regular enquiry into the universe was first instituted in AD 140 by Claudius Ptolemy, a Graeco-Egyptian astronomer. He propounded the theory that the earth was the centre of the universe and that the sun and other heavenly bodies revolved around it. There have been several theories since then, the more important of which are given below:

In 1543, Polish astronomer Copernicus argued that the Sun, and not the Earth, was the centre of the universe. Though the Copernican theory changed the centre of the universe it did not change its extent. The Copernican universe was still equated with the Solar System. It took another three and a half centuries before our ideas changed further.

By 1805 telescopic studies made by the British astronomer Herschel, made it clear that the universe was not confined to the solar system. The solar system itself was only a part of a much vaster star system called the galaxy. The universe thus became quite extensive comprising millions of stars scattered about the Milky Way. But our vision of the universe did not end there.

As the 20th century opened, it seemed that the Milky Way galaxy with its cluster of over a hundred billion stars together with their attendant satellites, the Magellanic clouds, actually represented all there was to the universe. In 1925 the American astronomer Edwin P. Hubble (1889-1953) pointed out that there were other galaxies in the universe and that the universe actually consisted of millions of galaxies like the Milky Way. In 1929 Hubble proved that these galaxies are flying away from each other and that the farther they are, the faster they fly. This meant that the universe is expanding like a balloon that is being blown up.

The movement of a star or a galaxy affects its light as seen by an observer. If the star is moving towards the observer, its light will be shifted towards the blue end of the spectrum. If the star or galaxy is moving away from the observer its light will be shifted to the red end of the spectrum. This is known as the Doppler Effect

or Shift. The Doppler shifts of galaxies show that they are receding and that the universe is in a state of rapid expansion.

Modern theories of the universe are based on this flight of galaxies, that is, on the assumption that matter is in a state of rapid expansion.

It is generally assumed that our universe started out as a superdense ball. It is argued that if the universe is now expanding (as Hubble has shown) it must have been, once upon a time, in a state of high compression. High compression means high density. We have, at present, no means of knowing how high the density of the original universe was.

Abbe Georges Lemaitre, a Belgian astronomer-priest, explained this process of expansion in what is known as the big bang theory. He argued that billions of years ago, cosmic matter (universe) was in an extremely compressed state, from which expansion started by a primordial explosion. This explosion broke up the superdense ball and cast its fragments far out into space, where they are still travelling at thousands of kilometres per second. It is from these speeding fragments of matter that our galaxies have been formed. The formation of galaxies and stars has not halted the speed of expansion. And, as it happens in all explosions, the farthest pieces are flying the fastest.

The primordial explosion is the hallmark of the big-bang theory. It also differs from other theories in two important respects.

The continuous creation theory originally advanced by two astronomers, Thomas Gold and Hermann Bondi, has since received support from the British astronomer Fred Hoyle. According to this theory galaxies recede from one another but their spatial density remains constant. That is to say, as old galaxies move apart new galaxies are being formed in the vacancies. These new galaxies are formed from new matter which is being continuously created to replace old matter that is being dispersed.

According to the Pulsating (Oscillating) Universe theory, advocated among others by Dr. Alan Sandage, the universe expands and contracts alternately between periods running into tens of billions of years. Dr. Sandage thinks that some 12 billion years ago a great explosion occurred in the universe and that the universe has been expanding ever since. It is likely to go on expanding for 29 billion years more, when gravitation will halt further expansion. From then on, all matter will begin to contract or

collapse upon itself in a process known as 'implosion'. This will go on for 41 billion years compressing matter into an extremely superdense state and then it will explode once again. This is the latest theory of the evolution of the universe.

Outer Space The difference between space and outer space is that space means the whole universe including the earth while outer space means all space other than the earth. In fact, outer space begins where the earth's atmosphere ends and extends on and on in all directions.

Outer space is vast. Our terrestrial units of measurement hardly suit its dimensions. So we have evolved new units of measurement like the **Light Year** and the **Astronomical Unit**.

A Light Year is the distance covered by light in one year in vacuum travelling at a speed of 299,792.5 km* per second. The solar system is less than one light-day (the distance light travels in one day) across.

Astronomical Unit represents the mean distance between the sun and the earth, calculated on the data supplied by radars. Distances within the solar system are measured in astronomical units (AU).

A.U. in terrestrial measurements is approximately 150 million (149,600,000) km. The distance between the Sun, and the Pluto, the outermost planet, averages about 39 AU. In terms of space dimensions we may say that a Light Year is made up of about 60,000 A.U.s.

Light and sound are the two principal media through which we gather our impressions of the external world. Light is something we can see (visible) and sound is something we can hear (audible). This was considered an axiomatic truth till the end of the 18th century. As the 19th century broke, this simple belief was shattered. Astronomers and physicists learned that there are invisible lights and inaudible sounds. The first break came in 1800 when the British astronomer William Herschel (1738-1822) discovered infra-red radiation.

When sunlight (white light) is passed through a prism, it is broken up into rays of different colours, like those of the rainbow. Traditionally, seven colours are known, which are epitomised by the acronym VIBGYOR, that is, *violet, indigo, blue, green, yellow, orange and red*. This is called the Solar Spectrum, with the violet colour at one end and the red colour at the other end. In studying the heating effects of the solar spectrum, Herschel placed a thermometer in each of the colours of the spectrum and an extra thermometer outside the spectrum at the red end.

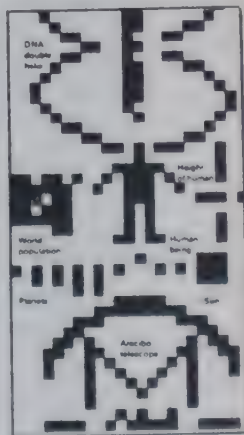
The thermometer outside the spectrum (at the red end) showed a higher degree of heat

than any other inside the spectrum. He called these rays *infra-red* (below the red) rays. In 1801 the German physicist Johann Ritter (1776-1810) discovered that the rays outside the spectrum at the violet end broke down silver chloride more quickly than the rays within the visible spectrum. These came to be called *ultra-violet* (beyond the violet) rays. It thus turned out that sunlight formed not only a visible spectrum but also an invisible one.

In 1803 Thomas Young (1773-1829), a British physicist, showed that light travelled in tiny waves of varying wavelengths. The wave lengths were too small to be measured by conventional scales. So Anders Angstrom (1814-1874), a Swedish physicist, evolved a new scale to measure wavelengths. He chose a unit equal to ten

Life in Space

The odds of finding a message from far-off civilization are quite slim. Assuming that there are 1,000,000 other civilizations in our own Milky Way galaxy, which consists of about 100,000,000,000 stars, astronomers would have to search through 200,000 stars (using at least 1000 radio-telescopes) before finding a signal from extra-terrestrial life. The search for messages from intelligent life requires continuous use of expensive radio telescope facilities that might well be dedicated to research that has a better chance of success. A SETI (the search for extraterrestrial intelligence) project estimated the total cost of at least \$ 10,000,000,000 (in 1983). In another project lasting 7 years beginning from 12 October, 1992, SETI has been co-ordinating efforts worldwide, using newly developed equipment capable of monitoring up to 70,000 radio channels. With the addition of new computer technology, it should soon be able to listen to 10 million frequencies. The next phase of the project will include beaming messages to every single one of the detectable stars in the universe, in the hope of getting reply. Even at the speed of light, a radio message may take 20 to 30 years to reach the nearest alien civilization. Another project, META, set a 25.5 m radio telescope for hunting unusual microwave frequencies in 'hot' areas of space.



billionth of a metre. This has since become known as the *Angstrom Unit*. Ten *Angstroms* are equal to a *milli-micrometre* (a thousandth of a millionth of a metre) which in terms of modern SI units is equal to a *nanometre*.

The invisible ultra-violet and infra-red radiations remained inexplicable till James Clerk Maxwell (1831-1879), the British physicist, came out with his *Electro-magnetic thesis* in 1870. Maxwell argued that electricity and magnetism were different aspects of a single electro-magnetic field.

The Maxwellian theory was vindicated when the German physicist Heinrich Hertz (1857-1895) produced electro-magnetic radiations with wavelengths much longer than that of infra-red rays. These radiations were at first called Hertzian waves but eventually came to be known as radio waves. Then in 1895, another German physicist Wilhelm Rontgen (1845-1923) discovered what he called X-ray radiation. The X-ray was later found to be much shorter in wavelength than the ultra-violet rays.

In 1896, the French physicist Henri Becquerel (1852-1905) discovered the phenomenon of *radio-activity*. *Becquerel did not at that time know why* or in what manner this radio-activity took place. Subsequently it was found that this radio activity was caused by the atoms of the heavy metal *uranium* giving off a constant emission of radiation and particles. It was further shown that this radio-activity was also electro-magnetic in nature. Rutherford named it the *gamma ray*. The gamma ray had a wavelength even shorter than that of the X-ray.

In 1905 Einstein showed that all forms of radiation travelled in wave packets, which acted like particles in some ways. He called these packets *Photons*. The energy of the photons increases as the wavelength decreases. The wavelength is related to frequency, that is to say, the number of vibrations or waves or cycles per second. The shorter the wavelength, the higher is the frequency and the greater the energy. Thus gamma rays with the shortest wavelength (below 0.01 nanometre) are the most energetic. The energy decreases as the wave length increases, through X-ray (1 to 0.01 nm), ultra-violet (1 to 400 nanos) visible light in all the colours of the spectrum (400 nanos to 700 nanos) infra-red (700 nanos to 1 millimetre), micro waves (1 millimetre to 500 millimetres or 50 centimetres) to radio waves which have the longest wavelengths (50 cms to 3000 cms or 30 metres) and the lowest energy content.

Every object which is at a temperature above *Absolute Zero* (-273.16°C) radiates photons of all kinds. The average energy of the photons emitted increases with the temperature. We experience this heat during the peak period

(noon) in visible light radiation. But even objects which are not hot enough to glow like the sun still radiate quantities of infra-red radiation, for instance, our own bodies.

Radio waves are the radiations with the longest wavelengths, that is from 50 centimetres to as much as 30 metres. Objects in outer space that emit such radiations are called *radio sources*.

Astronomy Modern astronomy began with the Italian astronomer Galileo. In 1609 Galileo heard of the telescope made by the Dutchman Hans Lippershey. He improved upon it and constructed a similar instrument that could magnify upto thirty diameters.

It was this instrument, which was a *refractor telescope*, that opened up the field of optical astronomy. Galileo made several startling discoveries. He found that the Moon's surface is rugged, and that Pleiades is a group of over 40 stars. He discovered four of Jupiter's moons and observed the sunspots.

In 1668 Newton invented a new instrument the *reflector telescope*. In a refractor telescope light is gathered by a large objective lens. In a reflector telescope a large curved mirror is used for this purpose. Both these types of optical telescopes are still in use.

The invention of the optical telescope was an epoch-making event in the history of astronomy. The instrument so caught the fancy of the astronomer and the layman alike, that all advanced countries vied with one another in building bigger and bigger telescopes.

Radio Astronomy came into being in the most unexpected manner. In 1931, Karl Jansky, an US radio engineer working in Bell Laboratory noticed a steady stream of radiation coming in from outer space. It is strange that professional astronomers of the time paid little attention to this discovery. However, it attracted the attention of an amateur radio operator in the U.S., Grote Reber, who set out by himself to learn more about this extraterrestrial phenomenon. He worked single handed for nearly ten years, studying the sky and analysing radiations. In 1937, he built the world's first *radio telescope*—a 9.58 m parabolic dish—and set it up in his backyard at Wheaton, Illinois. In 1940 he produced a radio map of the sky, the first of its kind in the world. Thus a new branch of astronomy was opened—Radio Astronomy.

The radio telescope is in many ways analogous with the optical telescope. It consists of a large metal reflector fitted with an antenna. The metal reflector collects and focuses radio energy on the antenna which can be tuned to any desired frequency. A sensitive radio receiver picks up the radiation from the antenna and records it. This is analysed in a computer and studied.

In the 1960s satellite technology took astronomical investigations farther afield. Until then astronomical studies were entirely ground-based. Now satellites have made it possible to study astral phenomena from above the atmosphere. Thus astronomy is studied from two levels—from the ground and from above the atmosphere. This has led to the emergence of many specialised fields in astronomy—X-ray, ultra-violet, Gamma ray and infra-red.

Radar astronomy was born in 1940, when a Hungarian physicist Zoltan Bay sent out a beam of micro waves to the moon and detected the echo. It is really a part of radio astronomy since micro waves can rightly be considered a part of the electromagnetic spectrum.

A new generation of "super telescopes" designed for mountaintops around the world ushered in a golden age of astronomy by the early 1960s.

Galaxies Galaxies are huge congregations of stars that hold together by force of gravity. They are so big that they have sometimes been called 'island universes'. Studies of distant spaces with optical and radio telescopes indicate that there may be about 100 billion galaxies in the visible universe. Galaxies seem to be scattered in space. Galaxies tend to be grouped together into clusters, and some clusters appear to be grouped into *supercluster*.

When the expanding material of the universe broke up in the first instance, billions of islands of gaseous matter were formed in space. These gaseous islands or *Proto-galaxies* rotated, each with its own speed of rotation. Those with very low rotational speeds assumed nearly spherical shapes. Others assumed elliptical forms with varying degrees of elongation, depending on their rotational speeds. Most of these gaseous islands, however had such high rotational speeds that their bodies were flattened out into the

shape of discs, from whose edges spiral arms streamed.

The centre of the galactic disc was formed by a multitude of proto-stars rotating on regular circular orbits around the centre of the galaxy, whereas the spiral arms were formed by highly diluted, dusty gas streamers which were caught in the general rotation and were twisted into the shape of spirals. The galaxies have thus come out in different shapes and sizes.

A structural analysis of the known galaxies brings out three major forms—Spiral, Elliptical, and Irregular. Spiral galaxies have a central nucleus with great spiral arms trailing round it. The Milky Way and the Andromeda Galaxy belong to this group. A special type of spiral galaxies is what are called barred spirals which have a central bar as a nucleus. The spirals comprise some 80 per cent of the galaxies so far known. Elliptical galaxies show purely elliptical shape without any spiral arms. They range in shape from spherical ellipticals to extremely saucer-shaped ones and account for about 17 per cent of the known galaxies. Irregulars, as the name suggests, show no definite geometric pattern or shape.

The Milky Way The Milky Way is our home galaxy. A peculiar feature of this galaxy is a bright band of light that runs almost in a perfect circle through it. Milky Way belongs to a cluster of some 24 galaxies called 'the local group'.

As seen from the earth this band looks like a river of light flowing through the sky. Actually it is made up of millions of scintillating stars which from the distance seem to be placed in close proximity to one another. Modern astronomers have called this river of light the Milky Way – now applied to the galaxy as a whole.

The Milky Way had so fascinated our ancestors among all nations that they gave it pretty

Large Radio Telescopes

Location	Description	Approximate Effective Area in sq m	In operation since
Jodrell Bank, Manchester, UK	Dia. 76 m Parabolic dish	3.0×10^3	1957
Green Bank, West Virginia, USA	Dia. 92 m Parabolic dish	4.5×10^3	1962
Parkes, Australia	Dia. 64 m Parabolic dish	2.3×10^3	1962
Arecibo, Puerto Rico	Dia. 300 m Spherical dish	3.0×10^4	1964
Green Bank, West Virginia, USA	Dia. 42 m Parabolic dish	1.0×10^3	1965
Lake Traverse, Ontario, Canada	Dia. 46 m Parabolic dish	1.1×10^3	1966
Udagamandalam, India	530 m NSx30 m EW Parabolic Cylinder	8.0×10^3	1970
Effelsburg, Germany	Dia. 100 m Parabolic dish	5.5×10^3	1972
Zelenchukskaya, North Caucasus, Russia	Ratan 600, 895 panels mounted on a circle of Dia 576 m.	1.4×10^3	1974

names and wove fanciful legends about it. The Yakuts of Central Asia called it 'the footprints of God' and the Eskimos 'the path of white ashes'. The ancient Greeks called it 'the Road to the Palace of the Heavens', the Chinese, 'the Celestial River' and the Hebrews, 'the River of Light'. The ancient Indians, called it 'the Akash Ganga' or 'the Celestial Ganges'.

The Milky Way is a spiral galaxy. The main body is a disc 100,000 light years across with a globular nucleus of about 16,000 light years in diameter (thick at its centre) and far-stretching spiral arms (in one of which our solar system is located). The Milky Way consists of hundreds of billions of stars rotating about the centre in a stately average period of some 230 million years.

Our galactic nucleus is about 32,000 light years from the Sun. It appears to be a rotating disc of gas. In this rotating disc massive activities are going on. One such scene of activity is very near the centre of the galaxy. Here, new stars are being born continually. The area is already crowded with full grown stars. The stellar density here is of the order of 3.26 light years.

Stars Stars account for 98 per cent of the matter in a galaxy. The rest 2% consists of interstellar or galactic gas and dust in a very attenuated form. The normal gas-density between stars (interstellar gas) throughout the galaxy, is about one-tenth of a hydrogen atom per cubic centimetre (cm^3) volume.

Stars tend to form groups. Lone stars going on their own are the exception rather than the rule in the universe. Single stars do not number more than 25% of the stellar population. Double stars account for some 33%. The rest are multiple stars. Antares in Scorpio is actually two stars. Capella and Alpha Centauri comprise three stars each, while Castor consists of six stars.

Stars which appear single to the naked eye are sometimes found to be double stars or binaries in the telescope. These are two stars revolving around a common centre of gravity. They are found in orbital motion round each other, in periods varying from about one year to many thousands of years.

When the hydrogen in a star is depleted, its outer regions swell and redden. This is the first sign of age. Such stars are called Red Giants. Our star, the Sun, is expected to turn into a red star of this type in another 5 billion years.

Red Giants are appropriately named. They have gigantic dimensions. Betelgeuse, for example, has an actual diameter of 480,000,000 kilometres, about 350 times the diameter of the Sun. Mira, another red giant, has a diameter of 640,000,000 kilometres.

Variable stars are stars that show varying degrees of luminosity. *Delta Cephei*, the first of this type of stars, was noticed in 1784 by the deaf and dumb English astronomer John Goodricke. He found that Delta Cephei had regular fluctuation of brightness every 5 days and 9 hours. Stars of fluctuating luminosity thus came to be called *Cepheid Variables*. In stars of this type, high luminosity fluctuates between periods as small as a few hours to as long as 1000 days or more. Generally speaking, the slower the bright-dull-bright cycle, the higher is the luminosity.

Novae and Supernovae are stars, whose brightness increases suddenly by 10 to 20 magnitudes or more and then fades gradually into normal brightness. The distinction between the two types has not been precisely explained. It would appear that they differ in degree and not in kind. The sudden increase in brightness is attributed to a partial or outright explosion. In novae, it seems that only the outer shell explodes, whereas in supernovae the entire star explodes. Novae occur more frequently than supernovae. As Prof. C. F. Powell puts it: "The whole structure of the star is blown to pieces, it flares up in brilliance so that its intrinsic luminosity for the first 30 days following the explosion is equal to about 1000 million of our suns."

Black Hole is an ancient star that has collapsed; matter is so dense that it creates a powerful gravitational force that draws everything nearby, including stars, into its centre. Gravity becomes so intense in a hole that nothing escapes, even light. Hence the object is dark and can not be viewed directly.

Gravity Waves are generated whenever space is fiercely disturbed (when a star is jostled). Such titanic movements should cause ripples of gravitational energy outward in all directions along the rubberlike mat of space-time. These waves are not travelling through space itself. This vibration of the space-time fabric conveys information very different from that carried by the electromagnetic spectrum, just as sound tells us different things than light does. They can even race right out of the heart of a supernova explosion, where photons of light get smouldered and absorbed.

Size of the Universe No one knows whether the universe is finite or infinite in size. The bright, unusual objects called quasars are the most distant objects in the universe found to date. Quasars may be as far as 16 billion light years from the earth.

Scientists can't determine the distance to a quasar by studying its brightness. But they can determine the distance by studying the quasar's red shift. When a quasar or any object that gives

Weighing the Darkness

Astronomers, for 60 years have been weighing the universe – and coming up short. The speed at which galaxies spin and the way stars cluster both hint that the cosmos may weigh 100 times more than the total weight of all the stars and nebulae in the sky. In other words, the amount of visible matter they contain is not nearly enough to keep the stars within them bound by the force of gravity; but bound they seem to be. So it seems that the galaxies weigh more than the sum of their visible parts. To solve the problem of this "missing mass", scientists have hypothesised the mysterious "dark matter".

Dark matter like any other form of matter exerts a gravitational pull on everything else. Over half a century, deep space observers have gathered evidences that there's more gravity around than there are stars and gas to exert. Galaxies rotate about their axes too fast to stay in one piece – unless a roughly spherical halo of dark matter holds each one together. Unless the astronomers' understanding of gravity is fundamentally flawed, which most of them consider unlikely, dark matter must exist.

Since dark matter does not emit any kind of light, its presence can be inferred only by its gravity. Gravity is what the ROSAT (Roentgen satellite) detected in 1993 when it snapped X-ray photographs of three galaxies, 150 mil-

lion light-years away, beyond the constellation Cepheus. This triplet is shrouded in a cloud of hot (X-ray-emitting) gas hovering in and around a small loose cluster of galaxies known as NGC 2300. Since it's hot, the cloud should long since have boiled off into space – unless dark matter is holding the system intact. The cloud itself weighs as much as 500 billion suns, and it spans a distance of about 1.3 million light-years. The gravity required to contain the cloud is 12 to 25 times greater than that in galaxies themselves. To get so much gravity, the three galaxies must be awash in dark matter which suggests that the universe may one day halt its expansion. It was the first time the amount in galaxies had been measured so accurately.

The ROSAT weighed only the dark matter; it did not identify it. Bad enough that 99% of the universe is invisible; worse, 90% of it might not consist of garden-variety protons and neutrons (as in people and planets) but particles never seen on Earth. Why? It may be so for many protons and neutrons would have produced much more hydrogen and other light elements than astronomers find out there. But even before physicists figure out what the exotic-matter is, they have gone one step ahead of Copernicus: not only are we not at the centre of the universe, but we are not even made of the same stuff.

light – moves away from an observer who is moving with the object. (Wavelength is the distance between successive wave crests), the observed change in wavelength is called a red shift. The amount of red shift depends upon the speed at which the object moves away from the observer. All but the nearest galaxies and all quasars are observed to have red shifts. Astronomers interpret the measured amounts of red shift as evidence that the universe is expanding with every part of universe moving away from each other. This is one of the fundamental observations that must be explained by a successful theory of the universe.

Age of the Universe Cosmology, the science of the large scale structure of the universe, really got into its stride in the 20th century when Einstein produced in 1915 the general theory of relativity which had sufficient maturity to construct mathematical models of the universe. The answers in the 1930s and '40s based on Edwin Hubble's own measurements of this constant was embarrassingly low at some

1.8 billion years. The current estimate of the critical age of the universe is about 13 billion years.

It took many years of work in extragalactic astronomy for Hubble's successors to appreciate the numerous errors and pitfalls that await the optimist who set out to determine the Hubble constant. The 60 odd- years following Hubble's original findings have seen numerous revisions of the constant with claims and counter-claims by the observers.

It was in the midst of this chaos that the Hubble space telescope launched in 1990 rightly chose as its key project – the measurement of the Hubble constant. The space telescope has a decided edge over ground-based telescope in imaging and resolution of very faint objects.

The Hubble constant as measured by the space telescope was on the high side implying a rather young universe – also depending on what theoretical mode is accepted. Scientists say the Universe could be just 8 billion years old if the Hubble Constant is precisely 80.

The Solar System

The solar system is centred in the Sun. Solar system consists of a star called the Sun and all the objects that travel around it. The solar system includes (1) 9 planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto), along with the satellites (not less than 63 moons accompanying the planets) that travel around most of them; (2) planet like objects called *asteroids* (hundreds of asteroids); (3) chunks of iron and stone called *meteoroids*; (4) bodies of dust and foreign gases called *comets* (thousands of comets); and (5) drifting particles called *interplanetary dust* and electrically charged gas called *plasma* that together make up the interplanetary medium.

The Solar system is tucked away in a corner of the Milky Way at a distance of about 30,000 to 33,000 light years from the centre of the galaxy.

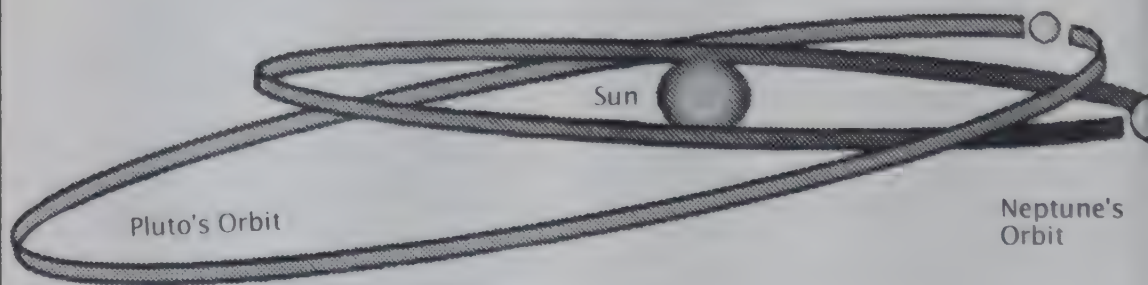
The solar system originated in a primitive solar nebula—a rotating disc of gas and dust. It is from this rotating disc that the planets and the rest of the solar system evolved.

The term *planets* is derived from the Greek word *planetes*, meaning wanderers. Unlike stars, which are visible in their fixed position in the sky always, the planets shift their position and sometimes even disappear from view. Therefore they came to be called planets—wanderers. The first known planets were named after the Roman gods—Mercury, Venus, Mars, Jupiter and Saturn. The other planets, which were discovered later, were also named according to the old pattern—Uranus, Neptune and Pluto.

The planets are divided into the inner planets and the outer planets. The inner planets are Mercury, Venus, Earth and Mars. The Earth is the largest of the inner planets and the densest of planets. All the inner planets are dense rocky bodies and are collectively called *terrestrial planets* (earth like). They appear to chiefly consist of iron and rock.

The outer planets, Jupiter, Saturn, Uranus and Neptune are very big (sometimes called *giant planets*), with large satellite families. The

The Last World: Neptune or Pluto?



For most of its orbit, the tiny planet Pluto revolves farther from the sun than any of the other eight planets, including Neptune. But Pluto's path is highly elliptical, or stretched out; at its closest approach to the sun, it is 4.4 billion kms away, but at its farthest approach it is fully 7.3 billion kms distant.

As a result of Pluto's eccentric habits, Nep-

tune claims the title of "farthest planet" whenever Pluto's path crosses inside Neptune's. That's the current situation: since 1979 (and lasting until 1999) Neptune has been the most distant planet. Then it will be Pluto's turn again, and for the next 228 years Neptune will revert to its usual position as the eighth planet from the sun.

are composed mostly of such elements as hydrogen, helium, ammonia and methane. These planets are called Jovian, after Jove, the Greek name for Jupiter, because they resemble Jupiter in many things. The two largest planets, Jupiter and Saturn send out radiation. Jupiter's radio waves are so strong that they can be picked up on earth by radio telescopes. All of them rotate furiously, wear dense atmospheres and consist of far lighter elements (contain little iron and rock) than the terrestrial inner planets.

The outermost planet Pluto is in a class by itself. It is supposed to be a dense planet like the inner planets, although it is the farthest of the outer planets.

Rotating on their own axes, the planets revolve round the sun in long elliptical orbits.

The Sun

The Sun is one of more than 100 billion stars in the giant spiral galaxy called the Milky Way. The Sun is the centre of the solar system. Its mass is about 740 times as great as that of all the planets combined. The huge mass of the Sun creates the gravitation that keeps the other objects travelling around it in an orderly manner.

The Sun continuously gives off energy in several forms—visible light; invisible infrared, ultra-violet, X-rays and gamma rays; radio waves and plasma.

Modern estimates place the Sun at a distance of about 32,000 light years from the centre of the galaxy. The Sun and the neighbouring stars generally move in almost circular orbits around the galactic centre at an average speed of about 250 km per second.

The Sun at this rate takes 250 million years to complete one revolution round the centre. This period is now called a *cosmic year*.

Like all other stars, the Sun is composed mainly of hydrogen. Its energy is generated by nuclear collisions in its interior. It is calculated that the Sun consumes about a trillion pounds of hydrogen every second. At this rate, it is expected to burn out its stock of hydrogen in about 5 billion years and turn into a red giant. The prospect is frightening.

When the Sun turns into a red giant, it will have swelled a hundred times in diameter and increased a thousand times in brightness—bright red. It will then occupy about 25% of the horizon. The nearest planets, Mercury and Venus, will melt. The oceans of the earth will evaporate and disappear. The earth will remain a barren rock, heated to the melting point of lead. All life on earth will cease. The Sun will survive as a red giant, for about a hundred million years more, slowly dissipating its enlarged outer shell leav-

ing a tiny core. This core will be a faint, white dwarf-sun no larger than the present planet Mars. Around this tiny star, the burnt-out earth will continue to revolve.

The glowing surface of the Sun, which we see, is called *Photosphere*. Above the photosphere is the *Chromosphere*, so called because of its reddish colour. Beyond this layer is the magnificent *Corona* of the Sun which is visible during eclipses.

Between the chromosphere and the corona, spectroscopic investigations have identified a distinct, very narrow boundary zone known as the transition region. The temperature of the photosphere is about 6000°C ., that of the chromosphere about $32\,400^{\circ}\text{C}$., that of the transition region about $324\,000^{\circ}\text{C}$., and that of the corona, which extends far into space, about $2,700,000^{\circ}\text{C}$, hot enough to emit X-rays. (The density of the gas in each layer decreases with increasing altitude, just as the earth's atmosphere thins with height. The corona, accordingly, is the least dense of the Sun's layers).

At the core of the Sun where thermo-nuclear reactions take place the temperature is around 15 million degrees K. The density at the core is estimated at a hundred times that of water. Outside the core is the convection zone. Here, like boiling water in a kettle, turbulent motions of gases transport the energy that is generated in the core towards the photosphere.

The visible white light of the corona is made up of a continuum of colours, such as violet, indigo, blue, green, yellow, orange and red. Super-imposed on this continuum are hundreds of dark lines called the *Fraunhofer lines*. Each line indicates some element present in the solar atmosphere. The intensity and width of the lines reveal the temperature and density of the element.

The Sun is constantly emitting streams of its substance (mainly hydrogen) as protons (nuclei of hydrogen atoms) in all directions. Sometimes these emissions are massive. They are then seen as *prominences* which send huge bouts of incandescent material upward from the sun's surface. Sometimes these eruptions roll out of the atmosphere of the Sun for many miles, when they are seen as *solar flares*. The solar flares are spectacular — hot ionised gas rolling out as enormous clouds, 20 to 40 times the size of the earth at speeds of around 100 km per second through corona, the outer layer of the Sun's atmosphere. Some of the most spectacular solar flares seen in recent years occurred on Feb. 28, 1942, Nov. 19, 1949 and Dec. 13, 1971.

A less spectacular but persistent stream of protons is blowing out of the corona and sweeping over the whole solar system. In 1958, the American physicist, Eugene Norman Parker,

called this outward stream of protons the *solar wind*. Recent researches using satellites have shown that the solar wind is made up of a plasma, that is, ionised gas, mostly hydrogen and helium, containing nearly an equal number of protons and electrons. It flows outward from the Sun at supersonic speeds, around 400 m a second. Apparently, this wind sweeps through the whole solar system to a distance of 40 AUs from the Sun which coincides with the very limits of the planetary orbits.

The surface of the sun changes continuously. Bright spots called *plages* and dark spots called *sunspot* frequently form and disappear. Gases often shoot up violently from the surface.

Owing to the Sun's rotation, the solar wind travels in spirals and carries with it magnetic fields. The Earth's magnetic field—the magnetosphere—acts as a shield against the ever-blowing solar wind and deflects it away from the earth. Nevertheless, particles of solar wind sometimes pierce the magnetic shield and enter the upper atmosphere, where, like the solar flares, they cause auroral displays.

The solar wind distorts the shape of the magnetosphere. The magnetosphere extends to a distance of 64,000 km above the earth—10 times the radius of the earth. On the part of the earth exposed to the Sun (the sunlit side), the solar wind sweeps along the magnetosphere past the earth. On the other side of the earth (the night side), the solar wind converges again and compresses the magnetic field into a plume or tail, more or less like what it does to comets. The tail thus formed extends to over 6 million km on the night side of the earth. The particles of the solar wind and also those from the deep space are trapped in the tail and travel back and forth endlessly.

Sunspots are dark patches noticed on the surface of the sun. They appear dark because they are cooler (around 1500°C) than the surface of the Sun which has a temperature of about 6000°C. The largest spot ever measured (April, 1974) covered 18,130 million sq kms or approximately 0.7% of the sun's visible surface. The life periods of these spots also vary. They may last from a few hours to many weeks.

Polar Auroras are two auroras, the *Aurora Borealis* or Northern Lights and the *Aurora Australis* or Southern Lights. These are lights that sweep across the sky in waves or streamers or folds. They are very often multi-coloured and provide one of the finest spectacles in nature. They occur in the Arctic and the Antarctic regions respectively. But the Northern Lights can be seen as far south as New Orleans in America and the Southern Lights as far north as Australia.

The magnetosphere is the earth's magnetic shield. It was at first called the *Van Allen Belts*

Solar Statistics

u Distance from the Earth	149.8 million km
Absolute Visual	4.75
Magnitude	
Diameter	1,384,000 km
Core Temperature	15 000 000 K
Photosphere Temp.	5770 K
Rotation as seen from the Earth	25.38 days (at the Equator) 33 days (near the poles)
Chemical Composition	Hydrogen 71% Helium 26.5% Other Elements 2.5%
Age	About 5 billion years
Expected lifetime of a normal star	About 10 billion years

u The mean distance from the Earth to the Sun (150 million km) translated into flying hours means that a jet aircraft capable of 1000 km/hr would need more than 17 years of non-stop flying to reach the Sun.

after the American physicist, James Van Allen who discovered them in 1959. Van Allen, in analysing the data from the earlier Explorer and Pioneer rockets found two belts of high intensity radiation in the upper atmosphere. Pioneer 12 later showed that these belts were a part of a large band of radiation called the magnetosphere. It extended far out to about 64,000 kilometres from the earth's surface.

The Moon

The Moon is the only satellite of the Earth. But it is a satellite of distinction. For, it is the only satellite in the solar system far too big to be a satellite. All other satellites have sizes below 1/10 the size of mother planets. But the Moon is about 1/4 the size of its mother planet, the Earth.

The Moon has a diameter of 3475 km against the Earth's 12,700 km. But it has a surface less than half that of the Atlantic Ocean. Therefore its gravitational pull is about one-sixth of the Earth's. Because the orbit of the Moon round the Earth is not circular but elliptical, the maximum distance (apogee) which the Moon may keep from the Earth is 406,000 km and the minimum distance (perigee) 364,000 km. The Moon revolves round the Earth in 27 1/4 days (27 days 7 hours 43 minutes and 11.4 seconds) and rotates on its own axis in exactly the same time. That's why only one side is seen.

To our unaided vision the near side (from the side) of the Moon seems to be made up of bright and dark patches. The bright parts are the mountains and highlands that catch the Sun's

ays, while the darker patches are low-lying plains. These were once thought to be seas (marias) and named accordingly, though the Moon is devoid of water. The craters are depressions caused by the onslaught of meteors. They vary in size. As if to make up for lack of oceans such as we have on the Earth, the Moon has raised high sharp-peaked mountains, many of them rising to 6000 m. The highest of these are Leibnitz Mountains, near the Moon's S. pole, which rise to 10,660 m—higher than Mount Everest.

The Moon has no atmosphere, as its gravitational power is too weak to hold down gases. This causes many strange phenomena. There is no twilight, the day dawns suddenly, as there is no atmosphere to be lit up before the Sun comes over the horizon. There is no sound either, as sound is a vibration transmitted through air.

Temperature on the Moon reaches extremes. During daytime the temperature rises to 100°C, at night it comes down to minus 180°C.

The Moon along with the Sun is responsible for the tides. The Moon, being nearer to the Earth than the Sun, exerts a greater influence on the tides. It takes only 1.3 seconds for moonlight to reach the Earth, whereas sunlight takes as much as 8 minutes 16.6 seconds to reach us. This being so, the ratio of lunar and solar power for tide-raising is 11 to 5.

Apollo XI which landed two men on the Moon in July 1969 blazed a new trail in man's exploration of space. It has enabled man to step on to the surface of the Moon—a possibility that the wildest legends of early times had discounted. USA has followed up this initial success by Apollo XII, Apollo XIV, XV, XVI and XVII.

USSR sent up the unmanned Luna 16 (Sept. 12, 1970) and Luna 17 (Nov. 19, 1970). Luna 16 pick-ed up Moon soil samples and returned to the Earth on September 24, 1970. Luna 17 carri-

ed the Moon buggy Lunokhod 1, which roved the Moon's surface. It was an 8-wheeled vehicle which carried apparatus to study the lunar surface and radioed back the results to the Earth.

All these landings on the Moon and the investigations of the unmanned spacecraft haven't solved the lunar puzzles. The question of the origin of the Moon and whether it is a daughter, sister or spouse of the Earth still remain.

However, the oldest rocks and soil samples from the Moon is about the same age as the Earth (about 4,600 million years old).

The most striking aspect of the Moon's appearance is the abundance of craters on its surface. They range in size from circular basins 1000 kms in diameter down to craters measuring less than a few metres across. The majority of these craters have been produced by a continuous rain of meteorites over the eons.

The first landing sites (Apollo 11 and 12) were marias. The rocks from these areas turned out to be basaltic lava, similar to volcanic rocks found on the Earth.

A surprising finding was, while terrestrial igneous rocks contained only about 1% of titanium, the lunar rocks showed 10 times as much. A few minerals unknown on earth were found in the mare basalts. Among these is *Armstrongite*, a new name derived from the names of the astronauts—*Armstrong*, *Aldrin* and *Collins* and the name of the area *Tranquillitis*.

The lunar rocks were bone-dry, with no trace of water in any form. Neither did they contain any trace of any organic matter. So also, volatile elements (elements with low boiling points) like Sodium, Potassium, Chlorine, Germanium, Lead and Mercury were practically non-existent. The depletion of Sodium and Potassium is significant, because these two are among the most abundant elements found in terrestrial rocks.

Biosatellites

Typical of other research projects was the US Biosatellite programme of the late 1960s. The Biosatellites afforded a means of studying the effects upon living things—plant and animal—of such phenomena as weightlessness, radiation, and elimination of the normal day night cycle.

Among Biosatellite findings was that plants are—to a greater degree than had been anticipated—dependent upon Earth's gravity for normal growth. Biosatellites carrying monkeys—sometimes for month-long periods—were intended to provide data on the effects of longer exposure to space-flight phenomena.

Other animals have played an important

role in space medical research without leaving the Earth. A wide variety of life forms has been used in laboratories to study the biodynamics of acceleration and vibration. Scientists also investigate the effects of temperature, various breathing gases, and radiation on biological systems. Dogs and mice were the animals most commonly used in Soviet experiments, while US scientists have favored mice and such larger animals as monkeys, chimpanzees, hogs, and bears. For example, dogs were widely used in centrifuge and vibrating-table experiments in the Soviet Union, while in the US bears and hogs have been employed in rocket-sled studies of deceleration

Space Exploration

Space exploration is over three decades old now. It started with Russia's 'Sputnik' and America's 'Explorer.' Man reached Moon in 1969 to walk on lunar soil. Then came the space stations 'Skylab', 'Salyut' and 'Mir'. Man learned to walk in space without tethers and to retrieve and repair lost satellites.

In 1989 the American spacecraft Voyager's 12-year odyssey to Neptune brought out startling discoveries about planets and their moons.

Space travel has opened up a new dimension in man's study of the Universe. Astronomers can now photograph in close-up the Moon and planets, which earlier they could only see dimly through the dense blanket of the Earth's atmosphere. Even though observatories have been

established on mountains 2,000 m or more in height astronomers on Earth are still hampered by the blurring and filtering effect of the atmosphere that remains above the mountains. Only by going into space can they achieve the clearest view of the sky, and also detect radiations, such as X-rays and ultra-violet light, that are blocked by the highest levels of the atmosphere.

The space age began on October 4, 1957, when Russia launched *Sputnik 1* into orbit, and this was followed a month later by *Sputnik 2* which carried the dog *Laika*. Measurement of the animal's heartbeats, temperature and other reactions, radioed to Earth, suggested that human beings might also survive prolonged periods in space.

The first US satellite, *Explorer 1*, did not

follow until January 31, 1958, but its instruments made the first major discovery of the space age - the Van Allen radiation belts around the Earth, where electrons and protons from the Sun are trapped by the Earth's magnetic field. Soon after, probes were sent to explore the Moon and planets, and on the way they detected the *Solar Wind* of sub-atomic particles streaming from the Sun.

Mankind's first look at the Moon's far side came with the pictures from the Russian *Luna 3* in October 1959.

The US *Mariner 2* in 1962 flew past Venus, confirming both its high temperature and the reverse direction of its rotation which had been suspected by astronomers. In 1965, *Mariner 4* sent back remarkable photographs revealing craters on Mars.

The work of the early space probes has been extended and improved by later planetary explorers, culminating in remote-controlled landings on the Moon, Venus and Mars - the last in a search for the possibility of life. The odyssey of Voyager 1 and 2 has shed new light on our view of the cosmos.

Probes are now swooping closer to the Sun than ever before to study solar activity, while others are pushing the boundaries of exploration out to *Jupiter* and beyond. Plans are being made to intercept one of those ghostly wanderers of the solar system, the comets.

Manned missions account for only 3% of the 2,400 or so spacecrafts which were launched in the first 23 years of the space age. The first man to be launched into space was the Russian *Yuri Gagarin* who orbited the Earth once on April 12, 1961. Later Russian cosmonauts, including the first space woman, *Valentina Tereshkova*, (June 16, 1963) were able to stay in orbit for up to days.

American astronauts made more modes flights in their smaller *Mercury* spacecraft, but in 1965 began the series of two-man *Geminis* flights that overtook the Russian lead in the space race. The team of astronauts in the *Geminis* programme practised rendezvous manoeuvres, docking procedures and space walks in preparation for the *Apollo* missions to the Moon.

The vital part of *Apollo* so far as landing on the Moon was concerned was the four-legged *Lunar Module*, in which two men touched down on the Moon. The first Moon landing, by Neil Armstrong and Edwin Aldrin from *Apollo 11*, took place on July 21, 1969.

Spacecraft Fundamentals

Any satellite or probe may be considered as a single system composed of several subsystems - an assembly of components which, together, can perform a desired task. A number of basic subsystems are common to most spacecraft, regardless of their missions. Among these are power supply; on-board propulsion; environmental control; attitude control; on-board computer; guidance and control; instrumentation; communications; and structure.

Party Time, Up There

In a historic and extraordinary scientific cooperation displayed by the former Cold War rivals American space shuttle Atlantis docked with the Russian space station, Mir, floating about 400 km above the Earth on 29 June 1995. The first ever linking up of the two countries' space ships was in 1975, when American Apollo capsule docked with Soviet Soyuz.

As a part of international project to build a permanent scientific station called Alpha, U.S. astronaut Norman Thagard with two Russian cosmonauts blasted off on March 14 aboard Soyuz, from Baikonur cosmodrome in Kazakhstan and docked on March 16, to work aboard Mir. Under the Alpha project Russia will build house fuel tanks, power plants, crew quarters and equipment, and provide rocket carriers and launching facilities to place elements of the station in orbit. The U.S. will pay Russia a mere \$400 millions for the job, which is comparable to the cost of the Indo-Russian cryogenic booster contract. Besides, the Russian participation in the project will save the Americans \$8 billion and enable NASA downsize the Alpha project cost to \$2.1 billion.

The magnificence of the achievement emerges from the mastery of the technology involved in the maneuvering of Atlantis to dock with Mir and the perfection brought to the interfacing of the shuttle and the space station. The next crucial operation, just as risky and difficult as the first is the pulling away of the space shuttle from the space station for its return to Earth.

The shuttle commander, Robert Gibson eased the Atlantis to first contact the mating rings on the shuttle and the Russian space station Mir, as they were hovering 395 km over Russian-Mongolia border (Central Asia).

The Mir was the passive partner in the union: its only task was to stay at the proper altitude.

The crews of both countries greeted each other inside the tunnel bridge between their spacecraft while orbiting over Pacific and the space-to-ground loops to flight controllers in Houston and Kaliningrad.

The whole sequence of docking was visible to the ground controllers. While one screen showed the view of the approaching shuttle from Mir and the other displayed what Gibson was seeing: a greenish target coming closer. And slowly, cameras from Mir captured images of astronauts and cosmonaut waving and smiling from the Atlantis windows. Gibson had the demanding task of steering the 100-ton Atlantis to within 7.62 cm of the

123-ton Mir, at a closing rate no faster than 30 cms in 10 seconds, while the two ships sped in tandem around the Earth at 28,150 kph. He had only two minutes to do this, so that Mir could maintain contact with a Russian ground station. The shuttle had no such constraints. It was in near-constant contact with mission control via satellite.

The docking missions are intended as preparation for the construction of the international space station due to begin in 1997. It will be a joint effort of Japan, Canada, U.S., Russia, Italy,

and the European Space Agency.

After years of negotiations aimed at making space efforts that have become prohibitively expensive for either nations alone, space officials hope the union would be a milestone in the effort to build an international space station. The U.S. and Russia are looking forward to one more extra-terrestrial get-together in October 1995 and at least five more until 1997 under a cooperative space agreement.



A total of 12 Americans walked on the Moon during the Apollo programme, bringing back 380 kg of rocks and soil. These samples from the Moon, along with scientific measurements made on the surface and from the orbiting mother craft, have helped scientists to piece together a detailed picture of our nearest neighbour in space.

Although no more Moon trips are currently planned, man will eventually return to the Moon, probably setting up small scientific bases like those in Antarctica, from which geologists will continue their study of the Moon and astronomers will observe the sky. Such 'colonies' might also mine the Moon's crust for minerals.

Eventually, a manned flight to Mars may be planned, although not before the beginning of the next century. A round-trip to Mars would take a year or more, and would probably be undertaken by a crew of 6, flying in two spacecrafts. Possibly the Mars flight will be a joint venture, with cost and construction shared between two or more nations, in the same way as the USA and Russia worked together to achieve the Apollo-Soyuz link-up in July 1975 and the Atlantis-Mir joint venture in 1995.

In the Skylab space station, and its smaller Russian counterpart called Salyut, astronauts have begun to extend the surveys of Earth resources and astronomical observations begun by satellites. The three Skylab crews, each of them, brought back a total of 72 km of magnetic tape logging instrumental results, 46,000 Earth resources pictures, and 175,000 images of the Sun taken through the special Skylab solar telescopes.

Space stations allow scientists and engineers to take advantage of the conditions of weightlessness and total vacuum when developing new manufacturing processes. Without gravity, for example, perfect crystals can be grown of materials for electronic components such as transistors. Materials that do not mix under gravity, for example oil and water, form a perfect blend in weightlessness.

Metals can therefore be fused, then cooled and solidified to make new alloys unattainable on Earth. Space conditions can also be used to produce ultra-pure chemicals such as vaccines, or make possible studies of cell growth that may throw new light on biological malfunctions such as cancer.

Before the promising applications of space can be fully exploited, the cost of space launches must be brought down. This has been the incentive for the development in the USA of a new transportation scheme called the *Space shuttle*. The Shuttle's main component is a re-

usable spacecraft, the *Orbiter*, which is launched by means of rockets but can glide back to Earth like an aircraft, landing on a runway.

The first Space Shuttle 'Columbia' reached orbit on April 12, 1981 — the 20th anniversary of man's maiden trip to Space. Shuttles Columbia, Challenger, Discovery and Atlantis achieved many firsts in space exploration and research. Shuttle 'Challenger' took Sally Ride, the first U.S. woman, to space on June 18, 1983. The first night flight, launched on August 30, 1983, carried also America's first negro, Guion S. Bluford. Columbia broke the record for the longest Shuttle flight in space on July 6, 1991, surpassing its previous record of 10 days 2 hours and 1 minute. This time, the flight lasted 13 days.

In November 1984 Shuttle succeeded in retrieving two malfunctioning Satellites, namely Palpa B-2 and Westar-6. These Satellites could be used again. Shuttle made successful retrieval and repair of satellite Solar Max in April, 1984. For this historic feat astronauts had to get out of the Spacecraft and 'walk in space' for as long as 6 hours and 44 minutes. On May 14, 1992 a trio of US astronauts from Shuttle Endeavour, Richard Hieb, Pierre Thuot and Thomas Akers, plucked a 4000-Kg wayward satellite Intelsat- from space, equipped it with a new rocket and sent it back to another orbit.

The American space programme received setback on January 29, 1986 when their Space Shuttle *Challenger* exploded in midair, 75 seconds after lift off. The crew — 6 astronauts and a woman school teacher named Christa McAuliffe — all died.

Challenger tragedy was a setback not only for the U.S., but also for many other countries including India which had programmed multipurpose satellites to be launched by the U.S. Shuttles.

The US redoubled its efforts and successfully launched Shuttle Discovery on September 29, 1988 with a five-member crew aboard. In March 1989 Space Shuttle 'Atlantis' launched a spacecraft on a 1300-million km voyage to Venus.

On October 9, 1990 U.S. Space Shuttle Discovery again launched the scientific spacecraft Ulysses into deep space to probe the polar regions of the Sun.

The Soviet Union joined the era of Space Shuttles on November 15, 1988 when its first reusable Shuttle 'Buran' (snow storm) was launched on the world's most powerful boost rocket 'Energia'. Buran circled the earth twice a little over 200 minutes before returning to the launch site near the Baikonur Cosmodrome in Soviet Central Asia.

The Soviet Union achieved a spectacular space

at on February 20, 1986 when it launched the new orbital space station called *Mir* (Peace) described as a third generation space laboratory. It joined the *Salyut-7* space station that has been in orbit around the Earth since April 1982.

The 130-tonne 'Mir' is a multi-modular station which can accommodate six spacecrafts at the same time. It has been fitted with one module called 'Quant'. Two more joining, these modules will function as factories.

The Russians have been sending cosmonauts aboard Soyuz-T spacecrafts to the space stations for prolonged stay and scientific experiments on a regular basis. For the first time, the Soyuz 15 launch on March 13, 1986 was televised live throughout the world.

The Salyut crew, Leonid Kizim and Vladimir Plovyov, conducted several experiments including flying from one space station to another.

Both the Soviet stations have orbits on the same plane some 3000 km apart but the shuttle takes more time than a trip either way with earth because the spaceship Soyuz uses the laws of celestial mechanics—changes orbits—for the shuttle in manoeuvres designed to save fuel.

Salyut-7 is in the near-earth orbit and it has been manned by changing crews including an Indian cosmonaut.

The world record for the longest stay in space (166 days) was achieved by two Soviet Cosmonauts aboard the *Mir* Space station followed by the US Skylab Mission in 1973-'74 for 83 days.

Both the US and Russia continued the space programme unabated during 1993. The American Shuttles *Discovery* and *Endeavour* engaged in launching the Scientific Satellites and relieving wayward satellites.

NASA's Mars Observer probe, under way to the red planet since September, 1992, transmitted its first close-up photos of the Martian surface in August 1993 from a distance of 5.8 million kilometers.

The European Space Agency, an 11-country consortium has been successfully launching satellites with its Ariane rocket from Kourou, French Guiana. Its 33rd launch in August 1989 put 'Hipparcos', world's first space-based telescope into orbit. China, Japan, India and Brazil are also going ahead with their space programmes.

China sent an Australian telecommunication satellite, Optus B1, into orbit on August 14, 1992 confirming the countries arrival in the commercial space market.

India successfully launched its first home-made multipurpose satellite INSAT-2A on July 10, 1992 and INSAT-2 B on July 23, 1993 on European Space Agency's Ariane.

Firsts in Space

◆ First extra-terrestrial vehicle: The first wheeled vehicle landed on the moon was the unmanned "Lunokhod1" which began its earth-controlled travels on 17 Nov. 1970.

◆ First artificial Satellite put into orbit: USSR's 'Sputnik' ('Fellow Traveller'), Launched on Oct. 4, 1957 and weighing 83.6 kg, it attained an altitude of 2 285.9 km at a velocity of 28 565 kmh.

◆ First Manned Satellite: USSR's Col. Yuri Gagarin took off in a 4.65-ton space vehicle 'Vostok' ('East') on April 12, 1961 to complete a single orbit of the Earth in 89.34 minutes.

◆ First woman in Space: USSR's Lt. Col. Valentina Tereshkova went to space in 'Vostok 6' on June 16, 1963. She completed 48 orbits in 2 days 22 hours 42 minutes. Svetlana Savitskaya of USSR became the second woman on Aug. 19, 1982 and Sally Ride of U.S. the third woman on 18 June, 1983.

◆ First 'Walk' in Space: Aleksey A Leohov from Voskhod 2, was the first person to engage in 'extra-vehicular activity' on March 18, 1965.

◆ First Indian to reach space: Sq. Ldr. Rakesh Sharma in Indo-Soviet flight on April 3, 1984.

◆ First Space docking of Atlantis space shuttle and Mir space station on 29 June, 1995.

In March 1995, cosmonaut Valery Polyakov returned from Mir after 437 days, 18 hours in orbit, breaking the old endurance record by 72 days. The longest flight in space will be that of Polyakov's, where he spent 607 days of his life (including a 1988 mission on Mir). He has orbited Earth nearly 10,000 times or rather 160, 256, 410.26 kms in the void. Polyakov's crew mate, Yelena Kondakova, set a new women's record: 169 days.

Out in zero-gravity and weightlessness in space, about 70% of the space travellers suffer from Space Motion Sickness, which affects the human physical system and the normal functioning. The balancing mechanism of the inner ear is thrown askew, sending distorted signals to the brain and eyes. Astronauts may lose the feel for the location of their limbs, find it difficult to guide their hands, the bone and muscle loss (can cause osteoporosis and cancer) and 'astemic syndrome', a kind of listlessness and depression borne of boredom. Sudden head movements may produce the sensation that the walls are falling producing instant nausea and vomiting. What happens next is rapid aging. To deal with weightlessness, Russia uses a lot of Asian and European style treatment like acupuncture, yoga, meditation, herbal medicine, etc.

The Earth

The earliest systematic theory of the Earth was the geocentric (geo = Earth) theory. According to this theory, the Earth is the unmoving centre of the universe, round which the Sun and the stars and all other heavenly bodies revolve.

The final formulation of the theory was made by Claudius Ptolemy, a Greek astronomer of Alexandria. He brought out an encyclopaedic work on astronomy in about 140 A.D. This work, later known by its contracted Arabic name *Almagest*, remained the Bible of astronomy for another 1400 years.

The heliocentric theory (helios=sun) was first advanced by Nicolaus Koppernigk (1473-1543), a Polish astronomer, better known by his Latinised name Copernicus. In 1543 Copernicus published a book *De Revolutionibus Orbium Coelestium* in which he set out the theory that the Sun was the centre of the universe and that the Earth and other planets revolved round it.

Like all other astronomers of the day, Copernicus believed that the solar system was equivalent to the universe. This was a mistake which was corrected only in recent times. He was also mistaken in assigning circular orbits to the planets. This mistake was corrected by the German astronomer Johannes Kepler (1571-1630) in 1609. For the rest, the Copernican theory was sound and unassailable.

It was left to the Italian astronomer, Galileo Galilei (1564-1642) to save the Copernican theory from extinction. Galileo fought a lifelong battle in defence of the Copernican theory. Before he died he had the satisfaction of knowing that the tide had turned and that the Ptolemians were on retreat.

Sir Isaac Newton (1642-1726) dealt the last blow at the geocentric theory. He formulated the law of gravitation and correlated it with laws of motion. His book *Philosophiae Naturalis Principia Mathematica* (known shortly as *Principia*) marks a turning point in the history of astronomical thought.

Modern theories on the formation of the Earth and other planets are of course based on the Copernican theory.

The age of the earth was a matter of speculation till very recent

times. It was only about 200 years ago that scientific enquiries were started by geologists. According to their deductions based on the study of rocks, the age of the Earth is estimated to be 4.6 billion years.

Our knowledge of the internal structure of the Earth is derived from studies of earthquakes. The shock waves sent out by an earthquake indicate the physical nature of the regions through which they pass. These studies show that the centre of the Earth is a solid core called the *Inner Core*. The density of this core is about 13 g to the cubic centimetre. The Inner Core is about 1300 km thick and is surrounded by

Earth Data

Superficial area	510 100 500 sq km
Land surface	148 950 800 sq km
Water surface	361 149 700 sq km
Equatorial circumference	40 067 km
Polar circumference	40 000 km
Equatorial diameter	12 754 km
Equatorial radius	6 377 km
Mean distance from the Sun	149 407 000 ¹ km
Time of Rotation on its own axis	23 hrs. 56 min. 4.09 sec
Period of Revolution round the Sun	365 days 5 hrs. 48 min. 45.51 sec.
Inclination of the axis to the plane of the ecliptic	23°27'
Speed of Rockets (that is, velocity required to counter earth's gravity and to rise up into the atmosphere)- A minimum of 8 km per second.	
Escape Velocity (that is, speed necessary to break away from the earth into outer space)-11 km per second.	

¹(This is now known as Astronomical Unit, A.U.)

Outer Core of around 2,080 km. The *Outer Core* appears to be molten.

The *Outer Core* is surrounded by the *Mantle* which has a thickness of around 2900 km. The *Mantle* is topped by the crust of the Earth, which varies widely in thickness—from 12 to 60 km at the centre to the *Inner Core*, that is at a depth of some 6,370 km, temperature goes up to some 4,000°C and pressure reaches nearly 4 million atmospheres.

The *Mantle* is important in many ways and accounts for nearly half the radius of the Earth.

900 km), 83% of its volume and 67% of its mass. The dynamic processes which determine the movements of the crust plates are powered by the mantle.

Starting at an average depth of from 45 to 56 km below the top surface of the Earth, the mantle continues to a depth of 2 900 km where it joins the outer core. The mantle is a shell of solid hot rock and separates the Earth's metallic and partly melted core (both the inner and the outer cores) from the cooler rocks of the Earth's crust. It is composed of silicate minerals rich in magnesium and iron. The density of the mantle increases with depth from about 3.5 grams per cubic centimetre to around 5.5 grams, near the outer core.

The upper portion of the mantle, about 250 km thick, is called the *Asthenosphere*. Here the rocks are partially melted, with thin films of liquid distributed between the mineral grains. The red hot nature of the lower mantle and the partially melted nature of the upper mantle (asthenosphere) combine to make the whole mantle plastic or yielding. It is on this plastic base that the top crust of the earth (of oceans and continents) that is to say, the lithosphere, rests. The lithosphere is distinguished from the asthenosphere by the fact that it is cooler and therefore, more rigid.

The top layer of the lithosphere virtually floats on the asthenosphere. Like other floating bodies the crust seeks an equilibrium riding deeper where it is heavier and rising higher where it is lighter. The mountains on the crust have deep roots of light material to support them and when the load on any part of the crust changes, the surface responds by rising or sinking to restore the equilibrium.

The outer surface of the earth is divided into spheres. 1. *Lithosphere* means the entire top crust of the earth and includes not only the land surface but also the ocean floor. 2. *Hydrosphere* is the water surface which includes the oceans,

lakes and rivers. 3. *Atmosphere* is the blanket of air that envelops the earth. It covers both the land surface and the water surface. 4. *Biosphere* is the sphere of life which spreads over all the three other spheres.

Lithosphere

The lithosphere is the top crust of the earth on which our continents and ocean basins rest. It is thickest in the continental regions where it has an average thickness of 40 km and thinnest in the oceans where it may have a maximum thickness of 10 to 12 km. It constitutes about 1% of the Earth's volume and 0.4% of its mass.

Though the lithosphere technically includes both the land mass and the ocean floor it is often used to indicate only the land surface. Regarded thus, the lithosphere forms only 3/10 of the total surface of the Earth. The rest 7/10 is taken up by the oceans.

As we see it today, the topmost portion of the land surface is sand and soil except where rocky outcrops show. All the sand and much of the soil that we see have derived from ancient rocks. The rocks themselves were originally formed from the molten magma, which erupted from the interior of the earth. Powerful earth movements have heaved up some of the rocks to the top surface, where they are exposed to climatic influences. The process by which rocks are broken down into sand is known as 'weathering'. Many factors operate to weather down the rocks, the most important being 'weather' itself.

When rocks heated hot by the Sun are suddenly cooled by rain, they crack. When this process goes on for thousands of years big rock formations crumble down as sand. Similarly frost can break down rocks. Water caught in the crevices of rocks turns to ice in winter conditions and expands. This pressure often cleaves rocks. Multiple factors are, therefore, responsible for the present day land forms.

Continents

Name	Area sq kilometres	% of Earth's area	Population Estimate	Highest Point in metres	Lowest Point in metres
Asia	41 667 920	29.5	2 316 312 000	Everest	8 847.7
Africa	29 800 540	20.0	401 000 000	Kilimanjaro	5 894.8
N. America	24 320 100	16.3	342 700 000	McKinley	6 193.5
S. America	17 599 050	11.8	219 000 000	Aconcagua	6 958.8
Europe	9 699 550	6.5	660 313 000	Elbrus	5 641.8
Australia ♦	7 687 120	5.2	13 800 000	Kosciusko	2 228.1
Antarctica	14 245 000	9.6	-	Vinson Massif	5 138.9
					Dead Sea 396.8
					Lake Assai 156.1
					Death Valley 85.9
					Valdes Penin 39.9
					Caspian Sea 28.0
					Lake Eyre 15.8

♦ Australia with New Zealand, Tasmania, New Guinea and the Pacific Islands, (Micronesian, Melanesian and Polynesian Islands) is called Australasia by some geographers while some others call it Oceania.

The contours of the landscape are largely conditioned by the rocky substructure of the lithosphere. Geologically speaking, all materials that make up the crust of the Earth are rocks, whether they are big granite boulders, combustible coal, soft clay or loose fragments of gravel or sand. Rocks which form the substructure of the lithosphere may be broadly grouped into three classes- 1. *Igneous rocks*, 2. *Sedimentary rocks*, and 3. *Metamorphic rocks*.

Lithosphere is divided into 12 climatic regions.

We know that the face of the Earth, that is, its visible surface has undergone radical changes in the past. Geologists explain these changes as the consequence of the cooling and contraction of the Earth, through thousands of years. This explanation seemed quite unsatisfactory to a German scientist, Alfred Wegener (1880-1930).

In 1915, Wegener published a book *The Origin of Continents and Oceans* in which he advanced a new theory, the theory of *Continental Drift*. This theory claimed that the changes in the appearance of the Earth were, mainly due to the shifting of continents.

Continents Adrift

Scientists at Lamont-Doherty Earth Observatory in New York, say that one of the Earth's great crustal plates on which both India and Australia lie is cracking in two, since millions of years.

India's northward pressure continues to distort Asia today, pushing Tibet east relative to the main body of the continent and resulting in the continent Altyn Yagh fault, stretching over 2,200 kms in western China. Satellite images suggest that since the most recent ice age 10,000 years ago, the Tibetan side of the fault has slipped as much as 360 meters east. Starting about 8 million years ago, the accumulated mass of the Indian subcontinent became so great that the Indian Australian plate buckled and broke under the stress.

Samples drilled in the 1970s show a broad zone of the Indian Ocean floor, stretching more than 960 kms from east to west along the equator, was compressed and deformed. The newly created seafloor had spread outward from mid-ocean ridges in the zone and the theory is that the movements of the seafloor could only be accommodated if a distinct boundary existed between separate Indian and Australian plates. Today, the Atlantic and Indian Oceans continue to widen, while the Pacific gets smaller, and in 100 million years or so North America and Asia will probably drift into each other. Scientists have already named the supercontinent "Amasia."

The theory of *Continental Drift* assumes that the continents plough through the oceans like massive ships.

350 million years ago During the early carboniferous period large continental masses, Laurasia in the north, and Gondwanaland in the south, began drifting towards each other. Britain and much of the western Europe lay in equatorial latitudes.

200 million years ago In the late carboniferous period Laurasia and Gondwanaland collided, creating the super-continent Pangaea (and great ocean called Panthalassa) which remained largely intact until late Triassic times. A large gulf called Tethys opened up in the regions we now recognise as the Mediterranean & the Alpine-Himalayan mountain belts.

50 million years ago During the Eocene period the fragmentation of Pangaea was well advanced and continents and oceans began to look as they do today. The Atlantic Ocean widened, the Tethys Ocean narrowed, while the Indian continents isolated and exposed to northerly drift, was later to collide with north Asia.

Present Day The northward movement of much of the earth's continental masses continues. Changes since Eocene period include the continued growth of the Atlantic Ocean, the collision of the Indian continent with both Asia and the separation of Antarctica and Australia.

50 million years ahead Scientists predict still further widening of the Atlantic Ocean with continued spreading of the Red Sea and accompanying closure of the Persian Gulf. It seems likely that a new ocean could evolve in the East African rift system and that East Africa and Australia will drift to the position north of the Equator with Antarctica positioned more close to the South-pole.

Plate tectonics Plate Tectonics tells us that it is not only the continents that are in motion but the oceans as well. This is so, because the top crust of the Earth is not a complete single shell of granite and basalt, but a mosaic of several rigid segments, called plates. The theory of plate tectonics explains how the Earth's crust is moving in vast, rigid sections or 'plates' and a modern revolution in our understanding of the planet. These plates include not only the earth's solid upper crust, but also parts of the denser mantle below called Asthenosphere, and carry the continents and oceans on their backs like mammoth rafts. The plates with an average thickness of 100 km float on the Asthenosphere and move continuously against one another at a rate of upto 20 cm a year. Continents form only a part of the plates, the surrounding

ceans form the rest of the plates. It is the plates containing both continents and oceans that move.

The relation of inter-plate movement is determined by the type of plate margin: Constructive, Destructive or Conservative.

Constructive plate movement is well illustrated in the Atlantic Ocean. At the mid-ocean ridge, new ocean floor is continuously being produced as the Americas move further apart from Europe and Africa.

Destructive plate movement is found on all sides of Pacific Ocean, as the various plates slide down beneath the surrounding lithosphere.

Conservative plate movement can cause the most destructive earthquakes. It arises where adjacent plates slide past one another along transform faults, such as the San Andreas fault in California.

Mountains

Mountains are conventionally divided into four types, according to their mode of origin: old mountains, Block mountains, Volcanic mountains and Residual mountains.

Fold Mountains arise because the rocks in them have been buckled and crumpled by pressure. Just as a tablecloth, when pushed along a table, wrinkles up into folds, the rocks of the earth's crust react to lateral pressure to form folds. If the pressure is very great, the folds are squeezed tightly into pleats. Further pressure will send the pleats rolling over one another. As the pleats roll up, high elevations are formed. Only massive pressure like those resulting from colliding plates can fold and mould rocks into mountains. In fact, it turns out that all our big mountain systems have been formed by colliding plates. The *Himalayas* rose over such a colliding zone. So did the *Andes* (S. America), the *Rockies* (N. America) and the *Alps* (Europe). The *Himalayas*, the *Andes*, the *Rockies* and the *Alps* are fairly young mountains and are classed as *new fold mountains*. They have come into being, after the continental drift started with the break up of the super continent, *Pangaea*.

What are called *old fold mountains* must have been formed in the pre-drift era long before the continental masses came together to form *Pangaea*. Among the old fold mountains are the *Pennines* of Europe, the *Appalachians* of America and the *Aravallis* of India. These mountains have weathered down to stumps long ago.

Block Mountains come into being as a result of vertical earth movements along cracks of faults. Such movements are also caused by the pressure generated by plates. When such vertical earth movements leave a block of high elevation

Principal Peaks

Name	Country	Height (m)
Mt. Everest	Nepal-Tibet	8 848
Mt. Godwin	India (POK)	8 611
Kanchenjunga	Nepal	8 126
Annapurna	Nepal	8 078
Nanda Devi	India	7 817
Mt. Kamet	India	7 756
Gurla Mandhata	Tibet	7 728
Tirich Mir	Pakistan	7 700
Minya Konka	China	7 590
Mt. Communism	Tajikistan	7 495
Pobeda Peak	Kyrgyzstan	7 439
Muztagh Ata	China	7 434
Muztagh	China	7 282
Chomo Lhari	India-Tibet	7 100
Aconcagua	Argentina	6 960
Ojos del Salado	Argentina-Chile	6 868
Cerro Mercedario	Argentina	6 773
Huascaran	Peru	6 768
Liullaillaco	Chile	6 723
Volcano Tupungato	Chile-Argentina	6 550
Sajama Volcano	Bolivia	6 520
Illampu	Bolivia	6 482
Vilcanota	Peru	6 300
Chimborazo	Ecuador	6 267
Mt. McKinley	Alaska	6 194

standing between two areas of low elevation, the high land area forms a block mountain. Block mountains are usually steep-sided. The *Vosges* in France and the *Black Forest* mountains in W. Germany are mountains of this type.

Volcanic Mountains form as a result of volcanic eruptions. When a volcano erupts, the materials that are ejected fall around a hole or crater and build up a mountain that is roughly conical in shape and has a crater at the top. *Fujiyama* in Japan, *Vesuvius* in Italy and the *Chimborazo* and *Cotopaxi* in the Andes (S. America) are examples of such mountains.

Residual Mountains: Some mountains are so deeply dissected and reduced by weathering and river action that they stand out as skeletons. The *Catskill* mountains of New York are typical of this class.

Earthquake

Earthquake is a shaking of the ground caused by the sudden breaking and shifting of large

Earthquake Precautions

1. Don't panic.
2. Try not to leave the building until the tremor stops.
3. Position yourself in the doorway against the wooden frame.
4. or, get under a table / bed.
5. or, stand against a wall that has no shelves / light fixtures.
6. Stay away from lofts / attics used as storage space.
7. Stay away from all furniture / windows.
8. Leave the building after the quake is over. Stand in an open area where there is no danger of buildings or trees collapsing in case of any after shocks.

sections of the earth's rocky outer shell. Earthquakes are among the most powerful events on earth, and their results can be terrifying. A severe earthquake may release energy 10,000 times as great as that of the first atomic bomb. Rock movements during an earthquake can make rivers change their course. Earthquakes can trigger landslides that cause great damage and loss of life. Large earthquakes beneath the ocean can create a series of huge, destructive waves called tsunamis that flood coasts for many kilometers.

Earthquakes usually never kill people directly. Instead, many deaths and injuries in earthquakes result from falling objects and the collapse of buildings, bridges, and other structures. Fire resulting from broken gas or power lines is another major danger during a quake. Spills of hazardous chemicals are also a concern during an earthquake.

The force of an earthquake depends on how much rock breaks and how far it shifts.

On average, a powerful earthquake occurs less than once every two years. At least 40 moderate earthquakes cause damage somewhere in the world each year. About 40,000 to 50,000 small earthquakes--large enough to be felt but not damaging--occur annually.

Volcano

Volcano is an opening in the earth's surface through which lava, hot gases, and rock fragments erupt. Such an opening forms when melted rock from deep within the earth blasts through the surface. Most volcanoes are mountains, particularly cone-shaped ones, which were built up around the opening by lava and other materials thrown out during eruptions.

Eruptions of volcanic mountains are spec-

tacular sights. In some eruptions, huge fiery clouds rise over the mountain, and glowing rivers of lava flow down its sides.

In other eruptions, red-hot ash and cinders shoot out the mountaintop, and large chunks of hot rock are blasted high into the air. A few eruptions are so violent they blow the mountain apart.

Some eruptions occur on volcanic islands. Such islands are the tops of volcanic mountains that have been built up from the ocean floor by repeated eruptions. Other eruptions occur along narrow cracks in the ocean floor. In such eruptions, lava flows away from the cracks building up the sea bottom.

Deserts

Desert is a part of earth's surface that is too dry to support plant or animal life and is usually sparsely inhabited or uninhabited by man. Deserts are classified under three categories:

1. Tropical (Hot) e.g. Sahara, Arabian, Atacama Australian and Thar deserts.

2. Mid-latitude (Temperate) e.g. Gobi, Great Basin (US), Patagonian (Argentina), and Turkestan deserts.

3. High-latitude (Polar/Cold). e.g. Antarctica. In deserts, temperature goes as high as 58°C and as low as -88°C and below in polar deserts. They receive less than 250 mm rainfall annually.

Great Deserts

Name	Country	Area in sq km
Sahara	N. Africa	9 065 000
Libyan	N. Africa	1 683 500
Australian	Australia	1 554 000
Great Victoria	Australia	323 800
Syrian	Arabia	323 800
Arabian	Arabia	129 500
Gobi	Mongolia	1 036 000
Rub'al Khali	Arabia	647 500
Kalahari	Botswana	518 000
Great Sandy	Australia	414 400
Takla Makan	China	323 800
Arunta	Australia	310 800
Kara Kum	S.W. Turkstan	272 000
Nubian	N. Africa	259 000
Thar	N.W. India	259 000
Kizil Kum	Central Turkstan	233 100

Islands

Islands take a large mass of land, the biggest 16 of them accounting for as much as

million sq kms—greater than the area of the continent of Europe. The smaller islands count by the thousands. Islands are broadly divided into four types, continental, oceanic, tectonic and coral.

Continental Islands are those islands that rise from the continental shelf, like the British Isles or Newfoundland. These islands have the same geological structure as the continents to which they are related.

World's Largest Islands

Name	Area sq km	Location
Greenland	2 175 600	Arctic Ocean
New Guinea	821 030	West Pacific
Borneo	744 370	Indian Ocean
Malagasy Rep.	590 000	Indian Ocean
Baffin Island	476 070	Arctic Ocean
Sumatra	473 600	Indian Ocean
Honshu	227 970	N.W. Pacific
Great Britain	218 040	North Atlantic
Ellesmere Island	212 600	Arctic Ocean
Victoria Island	212 200	Arctic Ocean
Celebes	189 040	Indian Ocean
South Island, N.Z.	150 460	S.W. Pacific
Java	126 290	Indian Ocean
Luzon	120 790	West Pacific
North Island, N.Z.	114 690	S.W. Pacific
Cuba	114 524	Caribbean Sea
Newfoundland	110 680	North Atlantic
Iceland	102 846	North Atlantic
Mindanao	101 500	West Pacific
Ireland (N. Ireland & Rep. of Ireland)	82 460	North Atlantic
Hokkaido	77 720	N.W. Pacific
Hispaniola (Dom. Rep. & Haiti)	76 480	Caribbean Sea
Sakhalin	74 070	N.W. Pacific
Tasmania	67 900	S.W. Pacific
Sri Lanka	65 610	Indian Ocean

Oceanic Islands are those that rise from the bosom of the oceans. Their geological structure will have no relation to that of the nearest shores. They are very often the tops of submarine mountains or submarine volcanoes. *Ascension* and *Tristan da Cunha*, for example, rise from the Central Atlantic ridge (mountain) while *St. Helena* and *Teneriffe* are islands formed by submarine volcanoes.

Tectonic islands are created by movements in the earth's crust. The outermost layer of the earth made of rigid plates are in very slow, but constant, motion. When one plate is pushed under another plate, the top plate may scrape off pieces of the bottom plate. Over millions of years, this material piles up to form an

island. Barbados in the West Indies and Kodiak Island near Alaska were formed this way.

Coral Islands are the work of minute sea organisms called coral polyps. They congregate in large colonies. When the organisms die, their skeletons, which are made of a substance resembling limestone, form big clusters, some of which rise above the water.

One type of coral excels in building reefs. Reef-building corals thrive in warm tropical seas. They usually start building reefs, along the edges of islands. Such reefs are called fringing reefs. Many tropical islands have such fringes. These protect the islands from the ravages of the sea. Sometimes an island, with a coral fringe begins to sink. Its shoreline goes down first, while coral building continues upwards. The sea invades the sinking shoreline and separates the coral reef from the rest of the island. Such a reef is called a *barrier reef*. The Great Barrier Reef, which extends for more than 2000 km parallel with the coast of Queensland, Australia, appears to have come into existence in this manner. This is the biggest coral reef known and consists almost entirely of the limestone skeletons of countless coral colonies that had existed through thousands of years.

Low circular coral islands each with a central lagoon of shallow water, are called *atolls*. Atolls probably represent the last stage in the evolution of a coral island. When the island around which coral is built sinks, the coral ring remains above water, while the island disappears under the water. In course of time the coral limestone reef is weathered down to soil and seeds carried by birds or wind begin to sprout and produce vegetation. Then the coral reef turns into an inhabitable area—a *coral island* in fact.

Atolls consist of two parts, a central lagoon (watery area) and a surrounding reefland. Sometimes the watery surface is much bigger than the land surface. This is the case with *Kwajelin* in Marshall Islands, Central Pacific, where the water area covers 2850 sq km, while the land area is a narrow ring, with a total length of 280 kilometres. On the other hand, *Christmas Island* in Line Islands, Central Pacific, is an atoll with the largest land area known—480 sq km. Its lagoon is relatively insignificant.

Hydrosphere

It is estimated that the hydrosphere contains about 1,460,000 cubic km of water. Of this 97.3% is in the oceans and inland seas. The rest 2.7% is found as glaciers and ice caps, fresh water lakes, rivers and underground water.

The total stock of ocean water and fresh water has been fairly constant throughout geological history. But the ratio between ocean

water and fresh water has always changed according to climatic conditions. When the climate is very cold much of the sea water is absorbed by glaciers and ice caps and fresh water increase at the expense of sea water. When the climate grows hot, glaciers and ice caps melt and sea water gains at the cost of fresh water. Sea level observations during the last 60 to 80 years indicate that the sea level is rising slowly. This means that the climate is getting hotter.

The oceans cover 70.8% of the Earth's total surface area and hold 1445 million cubic km of water. This water despite its abundance is not directly useful to man, because it is not potable.

The ocean water contains about 3.5 per cent of dissolved salts – chlorine, sodium, magnesium, sulphur, calcium, potassium, bromine, strontium and boron. Minute quantities of carbon, silicon, aluminium, fluorine and iodine are found. The oceanic waters are always in motion, owing to a variety of natural forces.

Solar heat sets ocean water moving. The Sun warms up the water in the equatorial regions causing it to expand and rise by a few inches. This extra rise at the equator causes the water to flow down, to the north and south poles. As the warm water at the equator flows north and south, the heavier cold water (heavier, because of its extreme condensation) in the polar areas sinks below the warm water and spreads slowly along the bottom to the equatorial regions.

This interflow is complicated by the force of the rotation of the Earth. Because the Earth spins eastwards, the sea water tends to roll up to the west, turning slightly to the right in the northern hemisphere, and to the left in the southern hemisphere. This is known as the *Coriolis Effect*, after the French mathematician who discovered it nearly a century ago.

The oceans, unlike the continents, merge so naturally into one another that it is hard to demarcate them. Nevertheless, geographers have divided the oceanic area into 4 oceans, namely the *Pacific*, the *Atlantic*, the *Indian* and the *Arctic*. These oceans, by definition, include the seas, bays, gulfs and other ocean inlets attached to them.

The *Pacific* ocean is the largest and the oldest of the oceans. It occupies 35.25 per cent of the earth's area. It is 16 880 km at its broadest and 11 516 m at its deepest (Mindanao Deep). It has the greatest conglomeration of islands, which fall into three broad groups. *Micronesia*, *Melanesia* and *Polynesia*.

The *Atlantic* ocean, the second largest ocean, covers 20.9 per cent of the earth's area. Its greatest depth is 8,381 m (Milwaukee Deep).

The *Indian ocean*, the third largest, stretches from Cape Comorin in India to the Antarctic at

the South Pole. It takes up 14.65 per cent of the Earth's total surface area. Its greatest depth is 7,725 m (Planet Deep).

The *Arctic* is strictly not an ocean. It is not navigable. It winds round the North Pole and is completely frozen in winter and covered with drifting ice for the rest of the year. However, its separate existence and its area of over 13 million sq km entitle it to be called an ocean.

Though we have only four oceans, there are seven seas. The proverbial seven seas are made up by dividing the first three oceans into north and south along the Equator and adding *Arctic* to them, thus we have North Pacific, South Pacific, North Atlantic, South Atlantic, North Indian, South Indian and *Arctic Seas*.

The following table shows areas of the oceans, with their seas and other inlets detached.

There are some geographers who see the area around the continent of Antarctica as the Antarctic ocean. But most experts think that this part of the globe has no natural boundaries on the north, and consists largely of the southern extremities of the three major oceans-Pacific, Atlantic and Indian.

Oceans

Name	Area (sq km)
Pacific	165 242 000
Atlantic	82 362 000
Indian	73 556 000
Arctic	13 986 000

Principal Seas

South China Sea	8 142 960
Caribbean Sea	2 753 170
Mediterranean Sea	2 503 880
Bering Sea	2 268 190
Gulf of Mexico	1 542 990
Sea of Okhotsk	1 527 580
East China Sea	1 249 150
Hudson Bay	1 232 320
Sea of Japan	1 007 510
Andaman Sea	797 720
North Sea	575 300
Black Sea	461 990
Red Sea	437 710
Baltic Sea	422 170
Persian Gulf	238 800
Gulf of St. Lawrence	237 760

Rivers, Lakes and Falls

The two longest rivers in the world are the Amazon (Amazonas) flowing into the South Atlantic and the Nile (Bahr-el-Nil) flowing into

the Mediterranean. Which is the longer is more a matter of definition than simple measurement.

The length of the Amazon as measured in 1969 is 6448 km. A subsequent calculation has placed it at 6750 km. The length of the Nile as measured by M. Devroey of Belgium is 6670 km. If we take the lower figure for Amazon (6447 km) the Nile leads by 223 km. If the greater length is considered (6750 km) the Amazon leads the Nile by 80 km.

However, in judging rivers, the primary criteria are the amount of water they carry and the extent of the area they serve, whether for navigation or cultivation. On these counts the Nile loses to the Amazon by wide margins. The Amazon has the longest stretch of navigable water, 37,000 km. It has the greatest flow of all rivers in the world with an average 119,000 cubic metres per second (4,200,000 cubic feet of water per second (cusecs)) rising up to 200,000 cubic metres in flood. It has the largest river basin in the world, 7 million square kilometres. It has some 15,000 tributaries, the longest tributary Madeira having a length of 3200 km.

Longest Rivers

Name	Country/ Continent	Length in kilometres
Amazon	S. America	6447/6750
Nile	Africa	6670
Mississippi-		
Missouri	USA	5970
Yangtze Kiang	China	5470
Ob-Irtysh	Russia	5150
Congo	Africa	4666
Amur	Asia	4350
Hwang	China	4344
Lena	Russia	4260
Mackenzie	Canada	4240
Mekong	Asia	4183
Niger	Africa	4183
Parana	S. America	3942
Yenisey	Russia	3804
Murray-Darling	Australia	3717
Volga	Russia	3685
Maderia	S. America	3218
Yukon	Alaska-Canada	3184
St. Lawrence	Canada-USA	3057
Rio Grande	USA-Mexico	3033
Purus	S. America	2977
Sao Francisco	S. America	2900
Salween	Asia	2815
Danube	Europe	2775

Euphrates	Asia	2735
Indus	Asia	2735
Tocantins	S. America	2735
Brahmaputra	Asia	2700
Syr-Darya	Kazakhstan	2700
Si	China	2655
Ganga	India	2655
Orinoco	S. America	2575
Nelson	Canada	2575
Zambezi	Africa	2575
Ural	Russia, Kazakhstan	2533
Amu-Dar'ya	Turkmenistan, Uzbekistan	2494
Olenek	Russia	2494
Paraguay	S. America	2494
Japura	S. America	2494
Arkansas	USA	2333
Colorado	USA-Mexico	2333
Dnieper	Ukraine	2280
Rio Negro	S. America	2253
Orange	Africa	2172
Kolyma	Russia	2148
Irrawaddy	Burma	2132
Ohio	USA	2100
Kama	Russia	2030
Don	Russia	1966
Columbia	USA-Canada	1953
Saskatchewan	Canada	1940
Peace	Canada	1923
Darling	Australia	1866
Angara	Russia	1862
Tigris	Asia	1850
Sungari	Asia	1818
Pechora	Russia	1788
Snake	USA	1670
Red	USA	1638
Churchill	Canada	1610
Pilcomayo	S. America	1610
Uruguay	S. America	1610
Magdalena	Colombia	1610

Famous Waterfalls

Name	Country	Height (m)
By Height		
Angel	Venezuela	807
Kukenaam	Venezuela	610
Ribbon	USA	491
King George VI	Guyana	488
Upper Yosemite	USA	436
Gavarnie	France	422
Tugela	S. Africa	411
Wollomombi	Australia	335
Takakkaw	Canada	305

By volume of water

Name	Country	Average annual flow (cu. m/sec.)
Guaria	Brazil	13 300
Khon	Indo-China	11 600
Niagara	Canada	6 000
Paulo Afonso	Brazil	2 830
Urubupunga	Brazil	2 750
Iguazu	Argentina	1 750
Patos-Maribondo	Brazil	1 500
Victoria	Zimbabwe	1 090
Grand	Labrador	1 000
Guyana	Guyana	660

Atmosphere

The atmosphere is an insulating blanket protecting the Earth. It softens the intense light and heat of the Sun. Its Ozonic (O₃) layer absorbs most of the very deleterious ultraviolet rays from the Sun and thus protects living organisms from extinction.

The atmosphere is bound to the Earth by gravity. Satellites like the Moon, which have very low gravitational power, cannot and do not hold an atmosphere.

Air pressure simply means the weight of the entire air column over a given point. Air, of course, has very little weight. A litre of air weighs around 1.3 g. At the sea level, the air pressure is 1033.6 g per sq cm. This pressure is usually described as one *atmosphere*.

The atmosphere is composed of various gases and water vapour, and in its uppermost reaches, it is charged with subatomic particles. Up to about 50 km from the Earth, the atmosphere consists of about 78% nitrogen, 21% oxygen (O₂) and minor percentages of argon, carbon dioxide, neon, helium and methane, in that order. Above 50 km, the atmosphere is made up of atomic oxygen (O₁), ozone (O₃), helium and hydrogen.

The presence of atomic hydrogen in the upper atmosphere has recently been confirmed by a camera left on the surface of the Moon by the Apollo-16 mission. The camera has revealed a cloud of atomic hydrogen extending outwards from the Earth to about 64,000 km.

Water vapour is present in the lower atmosphere, say up to 12 km, in concentrations ranging from 0.01% to 1%. Although the amount of water vapour in the atmosphere is very small, its importance is very great, for without water in the atmosphere, there would be no water on Earth. Water enters the atmosphere by evaporation from the hydrosphere (and by transpira-

tion) and leaves the atmosphere by precipitation as snow or rain. It is a never ending 2-way traffic.

Clouds are made of water vapour that has evaporated from the Earth. They are very tiny droplets of microscopic size and are too light to fall down as rain. So they ride on the air waves until they condense and then fall down as rain.

It is the surge of electricity from the Earth that makes lightning the awesome phenomenon that it is. The lead, however, is taken by the clouds which send down a rather weak stroke called the leader stroke. The Earth responds by sending up a much more massive stroke to the clouds. The whole thing takes less than a second, so that we see the leader stroke and the counter stroke as one flash of lightning.

Dry air is highly resistant to electricity. When the air is loaded with water vapour it becomes a better conductor. Nevertheless, much power is required for the stroke to rip through the air. This excessive discharge of electricity heats up the air around the passage (of the stroke) to incandescent temperatures, say 10,000°C. It is this glowing air that we see as lightning flash. The heat also causes a sudden expansion of air which, as the heat disappears, contracts quickly again. This sudden expansion and contraction produce the familiar thunder clap. Although both occur at the same time, we see the flash first for light travels much faster than sound.

The character and composition of the atmosphere change as we go higher and higher. Altitudinally arranged, there are 4 important spheres, with 3 pauses. They are: 1. Troposphere with Tropopause, 2. Stratosphere with Stratopause, 3. Mesosphere with Mesopause and 4. Ionosphere or Thermosphere.

The one nearest the Earth—between 8 and 12 kms - is called the Troposphere. Here the temperature decreases with increase in height. It is the densest and contains water vapour and dust. Clouds are found here. Since 80% of the air mass is concentrated here it is capable of influencing Earth's climate. Tropopause is what separates Troposphere from Stratosphere.

In Stratosphere, where the temperature remains steady, extending from 12 to 30 km, is called the Stratosphere. It is free from water vapour, clouds and dust. Jets often fly in this zone. Ozone protects Earth from the bad effects of the UV- rays radiating from the Sun. Stratopause divides Stratosphere from Mesosphere.

Mesosphere extends up to 80 km and is very cold. Still higher, starting about 80 km above the surface, is the Ionosphere. In this uppermost region many of the molecules and atoms of the Earth's atmosphere are ionized (carry either positive or negative electrical charge).

Biosphere

The idea of a biosphere (sphere of life) was first suggested by the Austrian geologist Eduard Suess nearly a century ago. It was at that time an insignificant concept. Today, however, the biosphere has become the most important problem faced by man.

The distinguishing feature of the biosphere is that it supports life. It is estimated that the biosphere contains more than 350,000 species of plants including algae, fungi, mosses and other forms of plants, and eleven million animal species ranging from uni-cellular protozoa to man. The biosphere supplies the essential requisites of life for all these species, namely light, heat, water, food and living space or habitats.

The biosphere, or the *eco-system*, as it is generally called, is an evolutionary system. It presents a stable equilibrium of various physical and biological factors which have been operating in the past. The organic continuity of the system rests on a delicate network of interdependent relationships. The air, the water, man and the animals, plants and planktons, the fungi and bacteria are all invisibly interlinked in a life-sustaining system we call the environment. The eco-system or the environment has a rhythm and movement of its own which depend on a whole set of delicately balanced cycles. Living organisms—microbes, plants, animals, man—have survived by adjusting themselves to the environment and attuning their lives to its rhythm. It is, therefore, absolutely necessary that these cycles should be maintained unimpaired.

Energy Cycle What keeps the biosphere going is solar energy which comprises 99.98% of the total energy supply of the biosphere. Day in and day out the Sun pours forth its energy in the form of sunlight. Light consists of bundles of energy called *quanta*. The energy content of a quantum of light is proportional to its frequency. The shorter the wavelength, the higher the frequency and the greater the energy content. The process by which solar energy is transferred to molecules is called photochemical process. In this process sunlight excites the electrons in a molecule and kicks them out. These released electrons pair with other electrons from a neighbouring atom or molecule and thus form electron-pair bonds. These new bonds create new molecules.

The most important photochemical activity in the biosphere is *photosynthesis* in plants.

Photosynthesis is a complicated process. The light absorbed by chlorophyll molecules and by other pigments in plants is transferred to electrons in such a way as to create strong oxidants, that is, molecules that readily remove electrons from other molecules (oxidise them), or reductants, that is, molecules that readily supply electrons to other molecules (reduce them).

It is these oxidants and reductants that assist plants in producing carbohydrates and oxygen from molecules of carbon dioxide and water. Plants respire (give out) oxygen but retain carbohydrates which are converted to energy and stored in the form of chemical bonds, notably those of adenosine triphosphate (ATP) which is the basic energy currency of all living cells. High energy phosphate bonds of ATP contain 12,000 calories and release 7,500 calories when broken.

This energy is carried up the food chain by herbivores feeding on plants and carnivores feeding on herbivores. Omnivores like man draw their energy both from plant and animal sources. Much of the energy drawn by plants and animals (including man) is consumed and spent in maintaining the process of life.

The energy that is not expended in the course of life is stored in dead matter. Decomposing bacteria break up the dead matter and convert it into *humus* or *organic sediments*, releasing carbon dioxide, water and heat into the biosphere. Thus the basic ingredients of life are returned to the soil. The plants draw their nutrients from the soil and keep the cycle going. **Heat Cycle** Heat is one of the prime requisites of life. This is supplied by solar radiation. It is calculated that the solar heat reaching the Earth's orbit (just above the atmosphere) amounts to about 2 calories per sq centimetre per minute. But the Earth gets only less than half the radiation reaching the top of the atmosphere.

About 2 per cent is absorbed by the ozone layer in the atmosphere. Atmospheric water vapour, carbon dioxide and dust particles absorb around 18 per cent. The clouds reflect back into space some 23 per cent. About 22 per cent is scattered by the atmospheric dust. The earth receives only the balance of 38 per cent. But the story does not end there. Out of the 38 per cent solar radiation received, the Earth re-radiates about 7 per cent by long wave radiation, thus reducing the stock of terrestrial energy to 31 per cent.

At the same time, out of the 22 per cent

scattered by the atmosphere, 16 per cent ultimately reaches the Earth as *diffuse radiation*, the rest 6 per cent being irretrievably lost in space. Thus, on the whole the Earth receives about 47 per cent of the solar energy reaching the atmosphere. Meanwhile, the atmosphere acting as an intermediary between the Sun and the surface of Earth, retains about 5 per cent of the energy as sensible heat and about 24 per cent as latent heat in water vapour.

It is essential that the absorption and re-radiation of heat should ultimately balance. Otherwise the Earth would experience a net increase in heat or a net decrease according as a surplus or deficit of heat results from radiation. The balance between absorption and re-radiation is mainly regulated by water vapour in the atmosphere.

There is only a very little amount of water in the atmosphere, about 0.001 per cent. This insignificant amount of atmospheric water exercises an influence on the climate of the Earth, out of all proportion to its total mass. Besides keeping the balance between the absorption and radiation of heat, it controls the water cycle and determines our climatic conditions.

Carbon Cycle The biosphere contains a complex mixture of carbon compounds, in a continuous state of creation, transformation and decomposition. Practically all organic matter originates in the process of photosynthesis. The plants use the radiant energy of the sun to convert carbon dioxide and water into carbohydrates by splitting water to derive hydrogen, and by drawing in carbon dioxide from the air. In the process the plants release free oxygen (O_2) into the atmosphere.

While plants absorb carbon dioxide during photosynthesis, all living organisms respire and release carbon dioxide and decomposing bacteria do the same in regard to dead matter. But while respiration and decomposition go on all the time, photosynthesis takes place only during daytime. During daytime, carbon dioxide in the atmosphere comes down from an average of 320 parts per million to around 305 parts but at night it increases, going up to as much as 400 parts per million, near the ground level.

Apart from the daily production and con-

sumption of carbon (in the form of carbon dioxide), the Earth has a vast stock of carbon in permanent form. This stock consists of inorganic deposits (mainly carbonates like calcium carbonate etc.) and organic fossil deposits (chiefly coal, shale and oil). When we burn fossil fuels, we are merely adding more carbon dioxide to the atmosphere which has an excess supply already.

Oxygen Cycle Oxygen not only supports life but also plays a fundamental role as a building block of practically all vital molecules accounting for about a fourth of all the atoms in living matter.

The most recent factor affecting the oxygen cycle of the biosphere and the oxygen budget of the Earth is man himself. He inhales oxygen and exhales carbon dioxide, thus reducing the stock of oxygen and increasing the supply of carbon dioxide. He goes further and burns fossil fuels, depleting the oxygen supply still further. He reduces photosynthetic activity, by cutting down forests and replacing them with cities.

Some astronomers think that the original supply of oxygen in the atmosphere came from the ultraviolet rays of the Sun which broke up the water molecules in the upper atmosphere into hydrogen and oxygen. Whatever may be the initial source of the oxygen in the atmosphere, what is important is that the plants are now augmenting the oxygen supply by photosynthesis. They are not only augmenting our oxygen supply but also reducing the total supply of carbon dioxide which is increasing to alarming dimensions.

Nitrogen Cycle Nitrogen as it is obtained in the atmosphere cannot be used by the higher organisms. It has to be "fixed", that is, incorporated into a chemical com-

pound. Nitrogen, in other words, has to be converted into *ammonia* or *amino acids*, so as to be of use to plants and animals.

Fixation of atmospheric nitrogen on land is carried out by organisms called *diazotrophs* who possess the genetic code for the synthesis of enzyme *nitrogenase* which catalyses nitrogen fixation. These organisms fall into two broad classes — *symbiotic* and *non-symbiotic*. Symbiotic *diazotrophs* operate in association with some species of plants like legumes. The

The inhabitants of an ecosystem are classified as producers, consumers, and decomposers. Green plants of any kind, are producers because they make their own food through photosynthesis. Animals, including man, feed on plants or on other animals and are therefore classed as consumers. Organisms that cause decay—bacteria and fungi—are decomposers. The sequences in which the organisms within an ecosystem feed on one another are called food chains. Usually organisms of higher biological rank feed on those of lower rank. Ecologists group the members of any food chain into a pyramid of numbers.

contribute the lion's share (83%) of nitrogen fixation on land. Non-symbiotic agents who contribute the rest (17%) include blue green algae, aerobic (those requiring oxygen) bacteria and anaerobic (those who do not require oxygen) bacteria.

The total amount of nitrogen required annually by the biosphere is estimated to be 1,050 million metric tonnes (mmt). Of these the diazotrophs account for only 140 mmt. Non-biological agents like lightning or fire contribute 40 mmt. The balance of 870 mmt. comes from nitrogen locked up in dead plants and animals. These are recycled by nature as nitrates. The nitrates are converted into amino acids by decomposing bacteria. In aerobic conditions, where oxygen is available, bacteria will again intervene to oxidise the amino acids into carbon dioxide, water and ammonia. Thus nitrogen in the form of ammonia is returned to the atmosphere, where it gets dissolved in rain water, and ultimately replenishes the Earth.

Man has interfered with this natural cycle by industrially fixing nitrogen. He is now converting nitrogen into assimilable forms by artificial methods. Production of nitrogenous fertilizers has increased phenomenally in the last few decades. This means that there is an extra input of nitrogen into the atmosphere. This extra input is already larger than the natural output. We cannot now say how far this extra input will affect the biosphere or in what direction.

Water Cycle Water plays a versatile role in the functioning of the biosphere. It is essential for all forms of life, plants, animals and man. The water cycle has two distinct branches — the atmospheric branch and the terrestrial branch. In the atmosphere, water exists mainly in gaseous form. On the Earth, liquid forms and solid forms (ice) predominate.

Water is important to the biosphere in that it is from water that the biosphere draws its most abundant element, hydrogen. Hydrogen in the form of carbohydrates constitutes a very important source of energy for all living things. Although we have a plentiful supply of water in the oceans, it is not of direct use to us.

We depend upon a small stock of water—less than 1%—contained in our rivers and fresh water lakes and in the subsoil. This little stock of water is replenished by an even smaller stock of mobile water—less than 0.01%—which circulates in the atmosphere as water vapour much of which ultimately falls down as rains. The water cycle of the biosphere depends on the reciprocity of evaporation and precipitation. Liquid water on the Earth goes into the atmosphere as vapour by evaporation and transpiration of the plants. The vapour is returned to Earth as rain or snow.

Rich Biodiversity

India is one of the 12 countries identified as mega-centres of biological diversity. About 45,000 species of plants and 81,000 species of animals have been identified as a result of surveys conducted by the Botanical and Zoological Surveys of India.

Embracing 10 biogeographic zones and 25 biotic provinces, India incorporates an exceptional range of biodiversity, including all the world's major ecosystem.

As one of the oldest and largest agricultural societies, India also has an impressive diversity of at least 166 species of crop plants and 320 species of wild relatives of cultivated crops.

Forests, which contain much though by no means all of India's biodiversity, now comprise about 64 m hectares, or about 19% of land area of India, according to satellite imagery. Roughly 33% probably represents primary forest. About 10m hectares are managed as "Protection Forests" for ecological stability, 15m for production of timber, and 25m as social forest to meet the demand for the fuel wood and fodder. About 14m hectares lie within national parks and wildlife sanctuaries.

Indian flora comprises about 15,000 flowering plants (6% of the world-wide total), an estimated 33% of which are endemic; roughly 1,500 plant species are threatened. Areas rich in endemism are the North-East, the Western Ghats and the North-Western and Eastern Himalayas; however, the Andaman and Nicobar Island contribute at least 200 endemic species to the endemic flora.

Mammal fauna comprises 372 species, with 63% found in Assam. India's 1,228 bird species represent about 13% of the world's total and reptilian and amphibian fauna include 446 and 204 species respectively, with concentrations in the Western Ghats.

Faunal endemism varies substantially from 3.5% in mammals and 14% in birds to 32% in reptiles and 62% in amphibians. Among the larger animals, 173 species of animals, 101 of birds, 15 of reptiles, 3 of amphibians and 2 of fish are considered endangered.

The World Of Plants

The first man whom we can call a botanist was Theophrastus, who lived in the fourth century B.C. and was a pupil of Aristotle. He divided all plants into trees, shrubs, subshrubs and herbs—groups which are not natural in the modern sense but which had value for someone interested in the culture and uses of plants. The Romans added to botany only the notable compilations of Pliny and certain poetical works.

A Greek physician, Dioscorides, wrote in the first century A.D. a compendium of medicinal herbs which was widely used. After the disintegration of the Roman empire there was little growth of science for many centuries.

In 1859, the publication of *On the Origin of Species by Means of Natural Selection* by Charles Darwin profoundly changed the course of taxonomy. "Natural" acquired a new meaning; it referred to relationship by descent. A "natural family" was now one whose species were believed to be descended from one ancestor, the closeness of the relationship between the species depending on the length of time since this common origin. A scheme of classification, so far as it claimed to be natural, became henceforth an attempt at a cross-section of evolution in progress, and all previous schemes were re-examined in this light.

The scientific classification of plants and the plant kingdom has been undergoing constant revision. During the mid-1800's botanists divided all plants into two main groups, the *cryptogams* (hidden reproductive parts) and the *phanerogams* (visible reproductive parts). The cryptogams included the ferns, mosses, algae and fungi—plants that did not develop obvious reproductive structures such as flowers or seeds; the phanerogams were the flower-bearing or seed-producing plants. The basis for this division, however, was shown to be artificial and not indicative of true relationships.

Today, with the wide acceptance of the five-kingdom system as opposed to the traditional two-kingdom system of plants and animals, the bacteria, some of the algae forms, and the fungi are no longer considered plants. They have now been placed in kingdoms of their own; the kingdom Monera for the bacteria and blue-green algae (the latter also now known as the Cyanobacteria); the Kingdom Protista for the euglenoid algae, the yellow green algae, the golden brown algae, the diatoms, and the dinoflagellate algae, and the Kingdom Fungi for the fungi.

The remaining plant kingdom has been divided by various authorities into 5 to 18 major groups. The larger numbers of groupings are due in part to the plausible rejection of "vascular plants" (Tracheophyta) as a natural assemblage reflecting close relationships, with the result that each predominant group of vascular plants is regarded as a main division.

More commonly, perhaps, only six main divisions are recognized, usually as a tentative working arrangement readily subject to modification. The following table lists these six divisions, as well as the subgroupings within the division Tracheophyta and within the subdivision Spermatopsida.

Division Chlorophyta (green algae)

Division Charophyta (stoneworts; sometimes regarded as part of the Chlorophyta)

Division Phacophyta (brown algae)

Division Rhodophyta (red algae)

Division Bryophyta (mosses, liverworts, hornworts)

Division Tracheophyta (vascular plants; recognized in some classifications, which consider the following subdivisions to be full divisions)

Subdivision Psilopsida (whisk ferns)

Subdivision Lycopsidea (club mosses)

Subdivision Sphenopsida (horsetails)

Subdivision Spermatopsida (seed plants; that classification in which the seed plants are treated as a full division—Spermatophyta—following classes are regarded as subdivisions in those classifications that do not recognize "seed plants" as a valid category, the following classes are regarded as full divisions)

Class Pteridospermae (seed ferns, extinct)

Class Cycadae (cycads)

Class Ginkgoae (ginkgos)

Class Coniferae (conifers)

Class Gnetaeae (gnetums)

Class Angiospermae (flowering plants)

The following brief characterizations of various plant groups also include descriptions of the different types of fungi, which have been traditionally classified among the plants.

Green Algae The Chlorophyta, also called Chlorophyceae, are a group (3,700 species) mostly small aquatic plants, one-celled, colonial, and many-celled, having a great variety of forms. The Chloroplasts of many kinds are small disc-like bodies like those of vascular plants; those of others are larger, limited in number (sometimes one to a cell), and of an intricate

often decorative form as seen in a microscope. **Stoneworts** The Charophyta are many-celled aquatic plants growing erect and formed of a central stalk with branches in circles (whorls) at definite nodes. There is no vascular tissue, but some internal differentiation; some cells are elongated and contain numerous nuclei.

Brown Algae The Phaeophyta, Phaeophycophyta, or Phaeophyceae are margin algae, many growing attached to rocks or to the bottom between tide levels in the colder seas. Some are delicate and branched; many are large and leathery and have parts that simulate a stem with leaves. The latter, known as kelp, are harvested on certain coasts and used as manure or as a source of the iodine that they accumulate from the sea water.

Red Algae The Rhodophyta, Rhodophycophyta or Rhodophyceae are 2,500 species of mostly marine algae of moderate size, especially abundant in tropical seas where they often grow at great depths. A few species grow in fresh water and moist soil. Many species are delicately and beautifully branched; others form thin membranes with curled margins.

Slime Molds The Myxomycota, Myxomycetes or Mycetozoa are organisms (whether plants or animals is controversial) which form a slimy mass called a plasmodium on decaying leaves, wood, soil, leather, etc.

Algalike Fungi The Phycomycota or Phycomycetes are a somewhat miscellaneous group of molds and microscopic fungi. The name of the division is derived from their resemblance to certain threadlike algae.

Sac Fungi The Ascomycota or Ascomycetes are fungi characterized by a reproductive body called an ascus—a special type of sac which contains spores. Many sac fungi are molds which occur on bread, jams and other foods or which are normally present in cheese.

Among these is *Penicillium*, from a species of which penicillin is obtained. Other species are parasites, causing such plant diseases as leaf curl of peaches, powdery mildew of many plants, apple scab and chestnut blight.

Club Fungi The Basidiomycota or Basidiomycetes are the most complex fungi, including mushrooms, puffballs, earthstars, bracket fungi and others with easily visible bodies of various shapes. Among them are also the parasitic fungi that cause the very serious diseases called rusts and smuts.

Fungi Imperfecti Many fungi are incompletely known. The complete life cycle of many species that cause diseases of plants is not understood. They form spores of characteristic types and are classified accordingly.

Mosses and Liverworts The Bryophyta are small plants, many with simple stems and leaves

but no true vascular tissues; the mosses (Musci) ubiquitous (14,000 species), leafy, erect or creeping; the liverworts (Hepaticae; 8,500 species) flat, lobed, or leafy, addicted to moist places. The alternation of generations in these plants has been described above.

Psilophyta The Psilopsida or Psilophyta comprise two living genera and a number of fossils of vascular plants. The plants consist of an upright, branched system which grows from a horizontal underground system. There are no roots. The stem contains special ducts (Xylem through which water moves, and others (phloem) which serve for the movement of foods in solution.

Club-Mosses and Their Relatives The Lycopsidea, Lepidophyta, or Microphyllphyta are vascular plants mostly with upright or trailing stems covered with small leaves, many species bearing spores in definite parts called cones. Club-Mosses (lycopods) also known as ground pine, are familiar in northern forests but there are also many tropical species.

Horsetails and Their Relatives The Sphenopsida, Calamophyta or Arthrophyta are a largely extinct group represented by a single living genus, the horsetails (*Equisetum*). The horsetails have upright stems which grow from underground branches, both being marked by definite nodes at regular intervals.

Ferns The Pteropsida, Pterophyta or Filicineae are vascular plants with mostly large leaves commonly divided into many segments. The stem of ferns that grow in temperate regions is small and often subterranean, producing a crown of leaves at its growing end and roots elsewhere from its surface. Many tropical species known as tree ferns have upright tree-like stems with a crown of very large leaves.

Maidenhair Tree The maidenhair tree of the genus *Ginkgo* resembles cycads in its life cycle, but in many details is so unique that it is placed in a division by itself. It is not known in the wild state, having been cultivated for centuries in China. The leaves are small and fan-shaped.

Gnetophyta The Gnetales, also called the Gnetophyta or Gnetales, are a small group of three peculiar genera of doubtful relationships. Most species of *Gnetum* are tropical vines and resemble flowering plants. *Ephedra* species are a group of shrubby desert plants with scale-like leaves.

Conifers The Coniferae are trees and shrubs mostly with small leaves (scales or needles in many genera) that are retained for more than a year, forming pollen and seeds in cones. This group forms the coniferous forests of the north and of mountains and includes the largest plant on earth.

Flowering Plants The Flowering Plants, called the Angiospermae or Anthophyta, compose more than half of all known species of plants—about 200,000 species. They range in size from minute floating duckweeds to giant

eucalyptus and silk-cotton trees and include plants of a great variety of forms: cacti, water lilies, violets, sunflowers, orchids, magnolias, pitcher-plants, Indian pipe, mistletoe, Spanish moss.

The World of Animals

The Animal Kingdom is formally classified into major groups known as phyla. Each phylum has subdivisions for subphyla, then classes, and each class is partitioned into orders. Further successive smaller groupings are families, genera and species. As one progresses from larger (phylum) to smaller (species) units, the animals in each group are found to be more closely related. Within a species, all the animals are very similar in characteristics and can interbreed to produce offspring capable of interbreeding. Examples of this system of the classification for trout, frog, dog and man are given below.

The Animal Kingdom may be divided into two subkingdoms, the Protozoa and Metazoa. In this system of classification the subkingdom Protozoa includes only the protozoa, which are one-celled organisms; all other animals, including man, are placed in the subkingdom Metazoa and possess many cells. In other systems of classification the protozoa are grouped in the separate kingdom Protista.

Phylum Protozoa These microscopic animals were unknown until the invention of the microscope in about A.D. 1600. Because the single cell of these animals is very complex and performs the duties of the millions of cells in higher animals, it is best considered acellular or noncellular - as an organism whose body is equivalent to an individual cell, but is simply not subdivided into cells.

Phylum Mesozoa The Mesozoa are small animals, less than 1.3 cm long having the simplest structure of any Metazoa. They are cellular endoparasites (living inside their hosts) of invertebrates, and have complicated life cycle involving sexual and asexual generations. Their mode of reproduction is unique among the Metazoa as it is by agametes. (Sporelike cells which develop directly into adults). They may be degenerate flatworms.

Phylum Porifera The Porifera, commonly known as the sponges, are primitive, multicellular animals that live attached (sessile) to solid objects in water. Most of the 5,000 species live in salt water.

Phylum Coelenterata The coelenterates are

radially symmetrical marine animals with tissues, tentacles and unique, special cells (nematocysts) used for stinging with a paralyzing poison or for holding.

Phylum Ctenophora The ctenophorans, commonly known as comb jellies and sea walnuts are passively floating (planktonic) animals that live in warm oceans. They have transparent bodies which superficially resemble jellyfishes and are biradially symmetrical with eight rows of ciliated plates (combs).

Phylum Platyhelminthes The members of the platyhelminthes, commonly known as the flatworms, show a number of advances over the animals previously discussed. They have bilaterally symmetrical bodies with anterior (front) and posterior (tail) ends, dorsal (back) and ventral (underneath or belly) surfaces and nerve cords.

Phylum Nemertinea The nemertineans, commonly known as the ribbon worms, have soft, flat, slender bodies that are unsegmented, bilaterally symmetrical and covered with a ciliated epidermis. They vary in length from 0.6 cm to an extreme of 24 metres.

Phylum Acanthocephala The Acanthocephala are parasitic, spiny-headed worms which vary in length from less than 2.54 cm up to 60 cm. The females are larger than the males. All are parasitic in the intestines of vertebrate animals.

Phylum Aschelminthes The aschelminthes, like the acanthocephalans, include wormlike forms with a pseudocoel. The body may be flat or cylindrical and is covered by a tough, resistant cuticle. They have a complete and straight digestive system.

Phylum Entoprocta The Entoprocta are characterized by the openings of the mouth and anus being inside a cirlet of tentacles, a feature from which the name of this group is derived. All except one species live in salt water, either as solitary individuals or in colonies, and are attached to solid objects such as shells, marine worms or algae, by means of a stalk.

Phylum Bryozoa Bryozoans, commonly known as the moss animalcules, appear similar to members of the phylum Entoprocta but have

Classification	Trout	Frog	Dog	Man
Phylum	Chordata	Chordata	Chordata	Chordata
Subphylum	Vertebrata	Vertebrata	Vertebrata	Vertebrata
Class	Osteichthyes	Amphibia	Mammalia	Mammalia
Order	Isospondyli	Anura	Carnivora	Primate
Family	Salmonidae	Ranidae	Canidae	Hominidae
Genus	Salmo	Rana	Canis	Homo
Species	Gairdnerii	pipiens	familiaris	sapiens

true coelom lined with a peritoneal membrane. They are unsegmented, bilaterally symmetrical, triploblastic animals with a complete digestive tract. They are without circulatory, respiratory or nephridial systems.

Phylum Phoronidea The phoronids are solitary animals that range in size up to 38 cm in length. Each animal lives in a tube which it secretes, the lower end of which is buried in the mud or sand bottoms of shallow seas.

Phylum Brachiopoda The brachiopods, commonly known as lamp shells because of their resemblance to old Roman oil lamps, are small, solitary animals usually attached to the bottom of shallow seas. They look like clams at first glance, but the shells (valves) of lamp shells are on the top (dorsum) and bottom (ventrum) and the two are not alike; clams have similar shells on either side.

Phylum Mollusca The mollusks have the following common basic features: the absence of true segmentation; the presence of a thin membrane (the mantle) which secretes a shell; fundamental bilateral symmetry; triploblastic development; a complete digestive tract; a muscular ventral "foot"; a reduced coelom; and a mouth structure equipped with hard, horny (chitinous) teeth for rasping food.

Phylum Sipunculoidea The sipunculids, commonly known as the peanut worms, live at the seashore in burrows lined with mucus. The name comes from a resemblance between peanuts and the smaller forms; however, some species are threadlike and may reach 41 cm.

Phylum Echiuroidea The echiuroids, a group of odd worms, have no common name. Most

species live in burrows on the shore of tropical or temperate seas.

Phylum Annelida The annelids, the best-known example of which is the common earthworm, are the segmented worms.

Phylum Pogonophora The pogonophorans or beard worms are characteristically a group of deep-sea, threadlike worms living in stiff, chitinous tubes in the sea bottom.

Phylum Arthropoda There are more species of animals in the phylum Arthropoda than in any other; perhaps nearly 1,000,000 species are included. One primary characteristic common to all arthropods is the jointed leg, a feature not found in any of the more primitive groups.

Phylum Chaetognatha The phylum Chaetognatha includes about thirty species of arrow or glass worms. They have bristles about the mouth - a characteristic which gives rise to their name.

Phylum Echinodermata The echinoderms are marine animals having radial symmetry of unsegmented bodies. They have an internal skeleton (endoskeleton), which is usually flexible, formed from calcareous plates.

Phylum Hemichordata The hemichordates, commonly known as tongue worms, are slender, soft-bodied animals living on the floors of the sea. Some may reach a length of 1.8 to 2.1 metres.

Phylum Chordata The chordates possess the following three major features in common: 1) a hollow, dorsal nerve cord, 2) a notochord or longitudinal support, 3) gill slits at some time during their lives. A fourth characteristic, the ventral heart, is another important structure.

Descent of Man

Man has appropriated to himself the highest echelon in the biological hierarchy. But for all his pretensions of superiority he could not rid himself of many characteristics which he shared with lower species during the evolutionary process.

Biologically man belongs to the family of mammals and among mammals to a subfamily called the placental mammals. As a mammal he shares with other mammals, warm blood, hair and milk glands. As a placental mammal, his young are carried by the female for a long

Science and Technology

od prior to birth, attached by a placenta to uterus, through which the child receives nourishment from the mother's bloodstream. The mammals are today the most biologically advanced species and dominate the world of organic life. But more than 75 millions of years ago when gigantic reptiles ruled the Earth, the mammals were a frightened and insecure group. In order to survive and reproduce this early stock of hairy, warm-blooded creatures (of whom the tiny shrew is typical) had to keep to secret ways or to the dark, had to eat whatever could be found and had to carry their developing young within them rather than lay eggs where they could be easily be discovered (by other animals). "They were on the run, driven more or less underground or to foraging at dusk or through the night—a desperate kind of life that demanded a high fertility and a quick replacement of generations", wrote Norman J. Berri. He explains the fantastic evolutionary progress that the mammals achieved. They emerged from the tiny scurrying creatures they were into undaunted hunters lording it over all other species.

Among mammals, man belongs to the order of *Primates*. The Primates are distinguished by hands eminently adapted for grasping, an excellent vision, a keen sense of hearing but a poor sense of smell. The primates consist of monkeys, apes and man. The monkeys form a class by themselves, called the Lower Primates or Prosimians. Lemurs, lorises, tarsiers and tree shrews belong to this group.

Man and the apes together make up the higher Primates or anthropoids. The anthropoids are in their turn divided into two groups, the *Pongidae* (apes) and the *Hominidae* (man). The *hominidae* differs from the *pongidae* in the shape and structure of the pelvis, legs and feet. This means that the *hominidae* can walk upright on their legs while *pongidae* have to use their hands as well for locomotion. The *pongidae* comprises four families—the gorilla and the chimpanzee of Africa and the gibbon and orang-utan of South-East Asia. The *hominidae* consists of only one family—man.

According to Charles F. Hockett, the *Homo erectus* represents our earliest truly human ancestors. He says, "As soon as the hominids had achieved upright posture, bipedal gait, the use of hands for manipulating, for carrying and for manufacturing generalised tools and language, they had become men. The human evolution was over."

"The species *Homo Erectus* lived at some time during the Middle Pleistocene apparently in a large territory extending from Java

and China to Europe, North Africa and may be to South Africa." This species was the first to achieve what may be called the *Homo Erectus Complex*. This consisted of six items: 1. achieving pre-language, 2. developing striding gait instead of shuffling gait, 3. successfully venturing out into open savanna or grassland, 4. engaging in more extensive and effective hunts with more co-operation, 5. developing more advanced carrying techniques, and 6. beginning to lose their hair.

The next turning point in evolution came around 50,000 years ago, in the warm interval when the ice was retreating in the Pleistocene age. Around this time, a new type of man, the *Homo Sapiens* (thinking man), began to crop up here and there in the form of various successful mutations. "By this time", says Charles F. Hockett, "the genus *Homo* consisted of a single, tightly connected, widespread but highly diverse species. All surviving hominids were heirs to the full *erectus* complex. The brain had grown approximately to its present size with some variation in average mass from one population to another."

The sapiens complex as it emerged showed four distinctive features: 1. a more efficient brain, 2. true language, 3. a flat face, and 4. exploitation of the kinds of articulatory motions that are now universal.

The new complex emerged within the framework of the *erectus* complex and did not undo any of its advantageous features. But it was a new key complex and gave rise to a new adaptive radiation, the second phase of human radiation. The sapiens complex spread just as the *erectus* complex did—by migration and gene flow.

The tempo, however, was almost unbelievable. The complex bestowed upon those who attained it an unprecedented capacity to co-operate, to move, to improve technology, to adapt and to absorb or eliminate less gifted competitors.

By about 40,000 years ago, there was no surviving group of hominids anywhere (with the possible exception of the *Neanderthals*) who had not absorbed the improved techniques. The *Neanderthals* persisted in Europe for many years after the sapiens complex became established. This tells us that the sapiens complex did not arise in Europe. But neither do we know where the sapiens complex originated. The *Neanderthals* lacked the flat baby face that had appeared elsewhere (among the sapiens) and their brains averaged somewhat larger than our own today or that of the Old World contemporaries of the *Neanderthals*.

Genes

Gregor Johann Mendel in 1885 showed that certain hereditary factors operate in all biological species. The Danish biologist Wilhelm Johannsen called these factors Genes. The name stuck. It is now known that the genes not only transmit hereditary traits but also mastermind the entire process of life.

The genes are located in the chromosomes which are themselves situated in the nucleus of the cell. The genes, the chromosomes and the nucleus together constitute—to use a famous phrase of Churchill's - "a riddle wrapped in a mystery inside an enigma". The genes form the riddle, the chromosomes represent the mystery and the nucleus the enigma.

Much of the mystery surrounding the genes was cleared up with the discovery of the structure of the DNA (Deoxyribonucleic Acid) announced by J.D.Watson and Francis Crick in April 1953. In structure the DNA resembles a long rope ladder twisted around like a corkscrew. If we straighten the ladder, we shall see that the two sides of the ladder are long chains of two substances-sugars and phosphates-in repeated sequences. These form the backbone of the DNA. Their structure never varies.

The secret of the DNA lies in the rungs that connect the two sides of the ladder. These rungs form two parts or two half-rungs, each half being attached to one side of the ladder. These half-rungs can be one of four types of little molecules: Adenine (A), Cytosine (C), Thymine (T) and Guanin (G). Each of these half-rungs together with the attached segment of the ladder is known as a nucleotide. A half-rung on one side will only join with a specified partner on the other side. This predetermined arrangement for specific partners suggest that these little molecules form the letters of a fixed code or the words of a new language. Indeed, it has turned out that this is exactly what they are.

An A will form a rung only with a T and a C only with a G. So, the pairs A-T, T-A, C-G and G-C form in a way a four-letter alphabet with which messages can be spelt out. This four-letter alphabet makes up what is known as the Genetic Code. The genetic code is not only complex but also extensive. In 1977 Fred Sangar pointed out that the DNA code of a virus, when decoded by the computer came to a print-out of 15 meters. At this rate, the computer print-out for the human DNA would stretch to 16,000 km.

Enormously long strands of DNA intertwine within the core of living cells. So narrow and

tightly coiled is this DNA that all the genes in all the cells in a human body would easily fit in a 1.25 cm cube. Yet if all these DNA strands are unwound and joined together it would stretch from the Earth to the Sun and back.

The genes control all functions of the cell and body growth. The two main events in the life of most cells are multiplication (by division) and synthesis of proteins. Both these operations are carried out on the basis of the blueprints coded in the genes.

Before a cell divides, the DNA ladder splits down the middle. The nucleotides A's separate from the T's and the C's from the G's much in the same way as a zipper is pulled apart. Now the separated nucleotides A, T, C and G pick up appropriate partners from the free-floating nucleotides in the cell. Thus the split ladder becomes two whole ladders of DNA, each an identical copy of the other. Once the division of the DNA is completed the rest of the cells, other organelles also duplicate, ultimately producing two cells of the same type.

The replication of cells in growing bodies is followed by differentiation. Life in most species begins from a single fertilised egg or cell. This single cell becomes a double cell, then a quadruple and so on. At the same time different sets of genes work in different cells evolving specific physical traits, while specialised cells form different organs of the body, hands, legs, brain, heart etc. This process is known as *differentiation*.

Differentiation implies strictly regulated work. The cells concerned concentrate on one task in hand and cease all other activities as soon as the work is completed they stop working. This switching on and off of genetic activity is achieved by the presence of two molecules attached to the genes-inducers and repressors.

The genes which we inherit from our parents determine our hereditary traits. Hereditary characteristics are not transmitted in a package as it were. Different genes are responsible for different inherited traits. Each gene functions independently of other genes in this respect. The genes for a particular trait are found at particular locations in the chromosomes.

Chromosomes are thread-like bodies found in the nucleus of the cell. They are always found in pairs. Chromosomes vary in number according to species. The fruitfly, for example, has 4 pairs or 8 chromosomes in all, and the garden pea has 7 pairs (14 in all). Mice have 20 (40) and humans 23 (46).

Human Genome Project

The Human Genome Organisation as conceived by the developed countries like USA, Britain, and France was launched in 1990 with the intention of 'mapping' the entire human genome. The human genome refers to the 46 chromosomes that all of us have in our cells. The chromosomes, made up of DNA, carry approximately 100,000 genes, the units that carry genetic information from parent to child. DNA is made up of four chemical substances, called nucleotides. These four nucleotides - adenine, guanine, cytosine and thymine - combine with each other in various combinations, called genetic code, to make up the genes. The genetic code for a given characteristic, say black hair, is the same in all human beings. In all, 3 billion units of the four nucleotides combine in various ways to form the 100,000 genes.

The Human Genome Project seeks to make a map of the entire genome by fixing the location of all the genes in 15 years, starting from 1990. Two types of maps are being prepared - a physical map and a genetic map. In the physical map, the chromosomes will be mapped, and the location of all the genes will be determined with accurate measurements of the distances between the genes, and ultimately the complete nucleotide sequence. The genetic map, on the other hand, will identify the functions of the genes and place them in relation to already-identified genes.

To explain genetic mapping very simplistically, if all brown-haired persons had upturned noses, then it must follow that the genes responsible for these two conditions lie very close to each other on the chromosome. And if you already know the location of the brown-haired gene, then you can place the upturned nose gene right next to it. For this, researchers will have to work with DNA samples taken from large groups of similar populations, identify similarities and differences and work toward placing the genes by linking them to the approximately 10,000 genes, the positions of which are already known.

Interestingly, these 100,000 genes occupy only 10% of the genome. The rest is made up of repetitive sequences, whose functions are as yet unknown. Scientists at Indian Institute of Science have been working for several years attempting to fix functions to these sequences. Recently, these scientists elucidated the structure of one such repetitive sequence, called the *telomere*, present at the physical ends of the

chromosomes, which is said to have a role to play in the aging and dying of cells.

The physical and genetic maps are complementary to each other and must ultimately be integrated as one map. To use a simple analogy, imagine the genome to be a very long road with 100,000 houses on it. The physical map will tell you where each house is located. The genetic map will go further - it will tell you who are living in the houses. As the task of identifying the 3 billion nucleotides is something that no individual laboratory could hope to complete in even a hundred years, the concept of a united effort by countries all over the world was thought of. In 1990, HUGO came into existence and the project kicked off. Although the Americans were the biggest spenders on the project, the French came up with the first generation physical map in December 1993, followed by a first generation genetic map in June 1994.

What exactly will the benefits of mapping the genome be? It will revolutionise diagnosis of many diseases through gene therapy." Scientists know that many diseases have genetic predispositions, which means if a parent has had, say, cardiac disease or diabetes or breast cancer, then there is a good chance that the child will get it too. What then lies at the heart of the disease? Certainly a faulty gene. Now say that scientists could say exactly where this faulty gene was located. Making a diagnosis at the pre-natal stage and eliminating the foetus could be done with conditions like cystic fibrosis and mental retardation.

With over 6,000 known genetic diseases prevalent in the country, India by not joining HUGO thinking that India has little to gain from the project, has missed the bus. Though India can't afford the investment needed, its future benefits should be viewed in the context of globalisation and scientists at the National Institutes of Health, in the US and UK having attempted to patent human DNA sequence data.

India has a vast pool of human genetic resources and its purity well preserved because of India's peculiar marriage custom and also large family system. Since India has 30% of the world's accessible population, western researchers would be glad to cooperate with Indian scientists. Otherwise also they would collect samples clandestinely or rather have already been smuggled it out. This means India would have to pay a heavy cost for its own DNA's sequence data.

Our 46 chromosomes arranged in single file would measure more than 2 m. Yet they are contained in the nucleus which is about forty-thousandth of an inch. The nucleus is filled with nucleic acids of two kinds Ribonucleic Acid, RNA and Deoxyribonucleic Acid, DNA, is seen concentrated in the nucleoli, both of which are in the nucleus.

One of the primary functions of the cell is to manufacture proteins. The human body requires thousands of different proteins. All these are built from 20 amino acids. Each gene (or a distinct segment of the DNA strand) contains instructions for making a specific protein.

The instructions are coded into precise sequence of nucleotides. Just as we can change the meaning of a sentence by rearranging the words, the genes can spell an immense vocabulary of proteins using only the four nucleotides of the DNA - A, T, C and G. All the A, T, C and G in one set of human chromosomes (46 in number) can be put together in billions of different ways.

One geneticist, H.J. Muller, has estimated that the number of different ways of putting together all the A's, T's, C's and G's would be the figure 256 followed by 2.4 billion zeros. This is a figure that boggles the imagination. It would be a lifetime job if any one sat down to write out that figure in full. Or just try it.

In protein synthesis the DNA is assisted by the RNA (Ribonucleic Acid). RNA is a single strand as against the double strand of the DNA and is different in composition. That is to say, the RNA has Uracil (U) in the place of DNA's Thymine (T). RNA is of two kinds, messenger RNA (mRNA) and transfer RNA (tRNA). When a protein is to be prepared the concerned gene opens. RNA (mRNA) nucleotides attach themselves to the gene and go on growing like a ribbon. This ribbon is the mRNA. It carries the code for making the specific protein.

Proceeding from the gene inside the nucleus the mRNA moves out into the cytoplasm looking for a ribosome for the assembly of the particular protein. The sequence of A's, U's, C's and G's on the messenger RNA forms into groups of 3-letter words like ACU, CGG, CCU etc. These 3-letter words are called codons.

The message carried by the messenger RNA (mRNA) is transferred to the transfer RNA (tRNA).

The ribosome with the assistance of tRNA proceeds to collect the amino acids indicated in the message from the chemicals stored in the cytoplasm. Here, the amino acids are linked together in the sequence given in the code and the synthesis of that particular protein is completed.

Every cell is equipped with the material and the knowhow to build a full adult of the species. It is therefore possible to reproduce any organism if a living cell from any part of the organism is available. This was proved in the fifties by F.C. Steward of Cornell University. He placed tiny pieces from carrot slices in glass flasks containing nutritive solutions. He revolved the flasks slowly and released free cells from the carrot pieces. These free cells were left to grow by themselves. They grew into complete carrot plants. An English scientist J.B. Gurdon carried out another experiment with frog's eggs. He destroyed the nuclei in the eggs. The frog eggs were then filled with nuclei taken from a tadpole's intestinal tissues. The eggs developed into exact replicas of the donor tadpole. This opens up the possibility of cloning human beings themselves by the same process.

Cloning is asexual reproduction. A male and a female need not unite to produce an offspring. But in cloning, a cell from a male will only produce a male and vice versa. This handicap is compensated by the fact that the offspring will be an exact replica of the donor.

Genetic Engineering

As biologists learned more and more of the genetic code, they started investigations to see if the code can be permanently changed by manipulating the genes. All attempts in this regard have been collectively categorised as Genetic Engineering.

Genetic Engineering includes fusions, deletions, inversions and transpositions of genes. The most celebrated of all these attempts is the hybridisation of genes, that is grafting a piece of the DNA of one organism to the DNA of another. Research in this technique, briefly known as Re-

combinant DNA, was facilitated by the discovery of the plasmids and of certain enzymes.

Pioneer attempts in this direction have been so successful that the technique has emerged as a commercial proposition. This technique was "the technology of the 1980s, just as plastics were in the 1940s, transistors in the 1950s, computers in the 1960s and micro-computers in the 1970s."

The technique involves micro-surgery. Precision tools for this surgery are provided by certain enzymes which Paul Berg calls molecu-

ar scalpels and sutures. One of these enzymes called Restriction Enzyme can cut the DNA at any specific point required and graft it on to a foreign DNA. The sliced-out gene must have sticky ends shaped like mortises in order to anneal it firmly to the foreign DNA. This is also done by the Restriction Enzyme. Given these conditions it is possible to re-combine DNAs as diverse as those of a bacterium and an animal.

The first successful attempt at grafting a piece of DNA was made by Paul Berg of Stanford University. He took his initial supply of DNA from a well known laboratory organism SV 40 (short for simian virus 40). Its genetic structure is fairly simple with about 7 genes in all, compared to the thousands of genes that crowd the cells of higher organisms. To insert this genetic material into a bacterium, Berg used as his carrier (vector) another variety of virus called the lamda phage, which preys on bacteria.

The first step in the operation was to cut out a slice of SV 40's DNA molecule. This was done by the use of Restriction Enzyme. As the enzyme cut the double-stranded DNA, it left one strand jutting out at both ends. These were sticky ends and were to be inserted into the foreign DNA which was similarly cleaved with one strand standing out at each end. When the cut ends were put together the single strands joined up to become double strands and the cleavage in the DNA ring was closed up. When this was done Berg had achieved a scientific first—combining the DNAs of two species of virus into a single DNA molecule. Berg shared the 1980 Nobel Prize for Chemistry for this achievement.

The process of re-combination is as follows: An E.coli bacterium is broken up by a detergent and the pieces are spun in a centrifuge to isolate the plasmids. The plasmid is then immersed in a restriction enzyme which cleaves the plasmid at the specified place. The same enzyme is used to snip off a piece of DNA from a virus. The foreign gene (from the virus) is inserted into the cleavage of the bacterial plasmid and a re-combined molecule is formed. The new hybrid plasmid is then introduced into bacterium. The bacterial cell divides and with it the plasmid also divides and multiplies.

Gene splicing, is the most powerful and awesome skill acquired by man since the splitting of the atom. It is an unparalleled exploratory tool for examining and in the process changing, the complicated machinery of heredity. If a gene of unknown function is inserted into a bacterium, it can act as a probe that lets scientists see precisely what it does. By such techniques researchers will finally speed up the formidable task of identifying, locating and analysing every

one of the more than 100,000 genes found in the human cell.

The Recombinant DNA technique opens out many avenues of beneficial research. First comes the production of therapeutic proteins, like interferon, insulin, hormones etc. Interferon is a powerful antiviral agent made by a human body. But its supply is very limited considering the demand. Its extraction from blood cells and other human tissues is costly too.

A single injection of interferon costs as much as 150 dollars. If however, bacteria can be programmed to produce it, the supply of interferon will be plentiful and cheap, coming down to a maximum of 1 dollar per shot. The reason is that as a manufacturing unit bacteria are unrivalled. Mechanical assembly lines, however sophisticated, can never compete with them. Replicating every 20 minutes, a single bacterium can produce millions of bacteria in 24 hours, all of them turning out interferon in unbroken succession.

The same is the case with insulin, growth hormones, vaccines etc. Already genetically engineered bacteria have emerged as suppliers of scarce drugs like enzyme urokinase used to dissolve blood clots and betaendorphin, one of brain's own pain killers. The human growth hormone used to treat dwarfism, formerly in short supply, is now being turned out by bacteria tailored to produce it.

The case of insulin is slightly different. Insulin was being extracted from the pancreases of cows and pigs. This was enough supply. But it turned out that some people were allergic to animal insulin. Now, bacteria specially programmed for the purpose are producing insulin which avoids allergies.

Since molecular biologists first learned how to cut and splice DNA back in the 1970s, the applications have appeared to be almost limitless. Bacteria have been altered to act as little manufacturing plants, churning out such substances as insulin, human growth hormone and BST, a chemical that boosts milk production in cows. Plants from potatoes to corn to cotton have been endowed with extra genes that offer protection from diseases and pests. During the past few years, doctors have managed to repair potentially deadly enzyme deficiencies in a handful of human subjects. And almost every week, it seems, doctors find the gene responsible for another ailment, from breast cancer to Lou Gehrig's disease.

But that's just the beginning. As researchers delve more deeply into the human genome, they will not only find defective genes (information that is currently useful mostly for screening tests) but start to understand how to repair

Genetic jigsaw solved

J Craig Venter, a scientist of National Institute of Health, USA, has now deciphered the entire DNA sequence of a free-living organism. The sequence is a chain of 1,830,121 DNA bases, the chemical units of the genetic code which constitute the entire genetic database of the bacterium known as *Hemophilus influenzae*. "This is an incredible moment in history," raved Fredrick R Blattner of the University of Wisconsin. "This is what geneticists have been dreaming for a long time."

Every human cell contains DNA - the chemical basis of life - 97% of which is regarded as "junk", while 3% of it, comprising 60,000-80,000 genes, is worthwhile. These hold the essence of life. When decoded, they reveal tales of sickness and health - life and death.

Every living cell contains 2 nucleic acids - DNA (deoxyribonucleic acid) and RNA (ribonucleic acid). DNA is present in the nucleus, while RNA is present outside it, in the cytoplasm. RNA is widely distributed and exists in 3 forms - messenger (m)-RNA (which carries messages from the DNA to the site of protein synthesis), transfer (t)-RNA (which identifies the required amino acid and carries it to the protein assembly line) and ribosomal (r)-RNA (the RNA present in ribosomes - the site of protein synthesis).

Each DNA has a corresponding RNA. The DNA code is read and the message is carried to the site of protein synthesis via the m-RNA. The t-RNA then identifies the required amino acid and carries it to the protein assembly line. This process continues till the complete protein is synthesised.

Venter began his work when he discovered a paper by a geneticist, Leroy E Hood, in which DNA is sequenced by robots, not manually. He obtained one of the first sequencing machines from Applied Biosystems Inc., California to further accelerate the process.

Venter observed that the cells know exactly which part of the DNA comprises genes. So he

copied the genes into the m-RNA. He took the m-RNA and then made a DNA copy (c-DNA) complementary to the m-RNA. Thereby, only the genes were simulated. Venter produced thousands of such c-DNA pieces and then deciphered them by reading them on the machine. He could read them at rapid fire speed as he developed special software programmes to fit together the "enormous jigsaw puzzle".

Until now, geneticists discovered genes by observing what function is impaired when a mutation, or change of bases, is made in a bacterium's DNA. With the genes fully catalogued, they can start with a gene and search for its function. Soon they will be able to tell by examining an individual's genes whether she or he is likely to develop a heart disease or be struck by breast cancer at any point of time in her or his life.

"The impact of this genetic information..... may become the mainstay of drug companies in future," says Jerry Slinghtom, a scientist working in the R&D wing of the front running US biotech firm Upjohn Co. And pharmaceutical companies realised this much before Venter had stumbled upon the discovery, when the scientific community was still scoffing at his seemingly unrealistic Human Genome Project.

Together, they formed an alliance, Venter heads the non-profit Institute for Genomic Research in Gaithersburg, Maryland, while Haseltine is the chief executive officer of the Human Genome Sciences Inc. in Rockville, Maryland, which has the right to commercialise the Institute's findings. The 2 "Gene Kings" were ardently courted by drug companies. SmithKline Beecham, HoffmannLa Roche Inc, Upjohn and Pfizer Inc and Merck & Co. invested megabucks in a bid to cash in on what they were convinced was a big bonanza- eventually to come up with the most lucrative corporate jackpot the world now has to offer.

them. Cancer cells, which have forgotten how to stop growing, will be re-educated. So, conceivably, will cells that have forgotten how to keep growing, like the cells responsible for hair growth in balding men. Genetic engineering will also play a part in fixing nongenetic damage. Nerve cells, for example, which ordinarily don't repair themselves, could be reconfigured to do so, whether in the aftermath of a spinal-cord injury or a brain disease like Alzheimer's.

And finally, genetic manipulation should make a profound difference in the way the world feeds itself. Food production is barely keeping ahead of population, and losing ground fast. But new, ultrahigh-yield varieties of staples like rice, now being designed in agricultural genetics labs, are almost certain to generate a second Green Revolution. By creating breakthroughs in agriculture and disease fighting, the manipulation of DNA should lead to profound improvements in human health.

Food and Nutrition

Human diet is not restricted to any special category of food. Man can and does eat a variety of foods, of both plant and animal origin. Variety is, for him, the spice of life, more so in foods, than in anything else. This natural desire for variety is justified by the fact that no single food provides us with all the nutrients that we need.

Cereals, like rice or wheat which form the staple food of mankind, supply us only with a fraction of our nutritional requirements. We have to supplement cereals with other foods that provide plenty of fats and proteins and minor quantities of a number of vitamins and minerals. This means that the larger our diet sheet, the better our health will be. This will become evident, if we analyse what nutrients our foods contain and in what proportion.

The nutrients found in foodstuffs may broadly be classified as (1) Carbohydrates, (2) Fats, (3) Proteins, (4) Minerals, (5) Vitamins and (6) Water. Proteins, fats and carbohydrates are called Macro Nutrients.

Proteins (from the Greek word *Proteios* meaning first) are the most versatile elements in the body. They are the chief substances of the cells of the body. They form important constituents of muscles and other tissues and vital fluids like blood. Enzymes, which assist in the digestion of food, and anti-bodies which are the body defences against infections are also mainly protein in nature.

The nutritive value of protein depends on the essential *amino acid* composition. Amino acids are the bricks with which tissue protein is built and replaced. There are some 20 amino acids commonly found in dietary proteins. Of these, 10 amino acids can be synthesised by the body itself, whether by mutual conversion among amino acids or from non-protein sources. But 10 amino acids cannot be so synthesised and have to be supplied through diet. These are called *essential amino acids*. Adults require 8 essential amino acids while children require 9 or 10.

Fat, like protein, is a necessary ingredient in diet and is of value to the body in a number of ways. It is a concentrated source of energy and supplies per unit weight more than double the energy furnished by either protein or carbohydrates. Some fats, especially vegetable oils, provide what are called *essential fatty acids*, linoleic and arachidonic acids, to the body.

Fats that circulate in the blood are of many

types—triglycerides, phospholipids, etc. The quantity and quality of fat consumed affects the level of *cholesterol* in the blood. Some fats like groundnut oil, sesame oil or sunflower oil which contain a high proportion of poly-unsaturated fatty acids do not increase blood cholesterol levels greatly. Others like coconut oil, butter, ghee and hydrogenated vegetable oils (*vanaspati*) contain high proportions of *saturated fatty acids* and greatly increase cholesterol levels. It is also found that consumption of smaller amounts of fat at different times causes less increase of cholesterol than a large amount of fat taken at a time.

Carbohydrates include every kind of starch and sugar. Grainfoods are largely composed of starch and foodstuffs like cane sugar and glucose are pure carbohydrates. They form the main source of energy for the body. Being a cheap source of energy, carbohydrates form the bulk of Indian diet.

A balanced diet simply means a diet that will supply all the nutrients necessary for the growth and development of the body. In India, a balanced diet has become an imperative since most Indians consume foods that provide more carbohydrates and fats than proteins.

The table below gives the amounts of the various foods that will make up a balanced diet for the average Indian. The quantity of food varies according to age and the type of work.

Vitamins and minerals comprise what are called micro nutrients as distinguished from proteins, fats and carbohydrates which are called macro nutrients.

Vitamins can be broadly divided into fat-soluble and water-soluble vitamins. Vitamin A, D, E and K are fat-soluble vitamins. Vitamin C and B (including Vitamins B₁, B₂ and other B-Group vitamins) are water-soluble.

The vitamins are necessary auxiliaries in metabolism. They combine with specific proteins, as parts of the various oxidative enzyme systems which are concerned with the breakdown of carbohydrates, proteins and fat in the body. Thus, they are intimately involved in the mechanism which releases energy, carbon dioxide and water as the end products of metabolism.

A large number of minerals is present in the body and performs a variety of functions. Minerals account for about 4 per cent of the body weight. Calcium and phosphorus form about three-fourths of the mineral elements. Five other

minerals—potassium, sulphur, sodium, chlorine and magnesium—account for most of the rest. Many elements are present in such minute quantities that they are called trace elements or micro-nutrients.

Water is a vital constituent of diet. An average man contains about 45 litres of water (70 per cent of the body weight). The cells contains 30 litres. Three litres are in the plasma of the blood, where the suspended cells make a total volume of blood upto 5 litres. The remaining 12 litres

(45–33) fill the space between groups of cells. This is tissue fluid which bathes all the cells of the body.

Water is absolutely necessary for the digestion and absorption of the foods taken in. It is the great solvent and neutraliser in the body. It is the substance in which bodily chemical reactions take place. Water is the carrier or transporting medium for all nutrients and body substances. It regulates body temperature. It is the great purifying agent in the body and removes

Irradiated not Radiationed

In 1984, the application of radiation got a thrust with the formation of the International Consultative Group for Food Irradiation (ICGFI). The ICGFI consists of the representatives of 26 member-states and those of the Food and Agriculture Organisation (FAO), the World Health Organisation (WHO) and the International Atomic Energy Agency (IAEA). Its brief is to sponsor and undertake research on the use of irradiation in food preservation.

BARC has approved marketing and consumption of irradiated food like spice, potatoes, onions, and sea-food. The scope for irradiated food consumption is increasing in the post-Gatt scenario as the preservation technologies begin to be appreciated and irradiated food consumed on a large scale around the world. The export potential is also estimated to be great in the international market. Consumer response in India has been lukewarm. It may be perhaps due to its link with nuclear plants, atomic energy industry, Chernobyl accident and Hiroshima and Nagasaki bombing. But the dissemination of information about the process and its benefits holds the key to consumer acceptance.

How is the food irradiated?

The food is exposed to ionising radiation, which transfers some of its energy to the food as it passes through, and kills the pathogenic bacteria that cause food to rot or develop other undesirable changes. The term 'ionising radiation' includes different kinds of radiation and, as a consequence, restricts definition of what kinds are satisfactory.

Food preservation uses electro-magnetic radiation like radio waves, infra-red light or ultra-violet light, but has a higher frequency and greater energy, which is sufficient to protect food, but not enough to make it radioactive. The irradiation process does not introduce any radioactivity into the food chain.

This is because the process uses gamma rays of certain energies, which cannot induce radioactivity in food. Unlike nuclear power plants and weapons manufacturing, the food irradiation process contains no uranium or other fissionable material; it does not even have the neutrons to produce fission.

The amount of energy used in food irradiation is relatively low and produces little heat. There are also no hot fluid or gases that could generate explosion or release radioactivity, even accidentally, in the environment. Besides the material used in the irradiation process cannot be used for nuclear weapons.

The propagation of energy through space is called "radiation" or "radiant energy". Electro-magnetic radiation consists of self-propagating electric and magnetic disturbances.

Irradiation complements, rather than competes with, the currently more popular methods of food preservation. It offers an alternative for foods for which heat treatment may not be the most appropriate method of processing.

How safe is Indian technology?

In India radiation source technology has been developed to the point where reliable, safe and inexpensive radioactive sources are available. The Atomic Energy Regulatory Board (AERB) specifies that the radioactive source be encapsulated in a double layer of stainless steel to prevent radioactivity being released into the environment. Other safeguards are also laid down to minimise the possibility of even accidental exposure of either the plant personnel or the population in general.

The technology and the high demand for quality products both in domestic and international has made The Shri Ram Institute of Industrial Research and other companies seek permission from AERB to set up such facilities.

waste materials in the form of tear, perspiration, urine and faeces. Watery substances act as lubricants in the body, especially in the joints. It is a part of all body tissues and fluids.

Acidosis, alkalosis and dehydration, oedema, fever, shock, uraemia and constipation are some of the clinical signs of inadequate salt and water in the body. *Sources:* The body obtains water mainly from the fluids we drink, from the solids we eat and also from the oxidation of energy foods. Fats and carbohydrates are oxidised in the body to carbon dioxide and water.

Cereals like rice, wheat and millets, ragi, cholam and bajra form the main food in India. Cereals are rich in carbohydrates. They generally contain 6 to 12 per cent protein, but these proteins are usually deficient in the essential amino acid *lysine*. Rice protein, however, is richer in *lysine* than other cereals.

Most cereal grains are poor in mineral content and rice is especially poor. Ragi is, however, rich in minerals, especially in calcium, and bajra in iron. Whole cereal grains are important sources of B-vitamins but in milling, rice loses the outer layers containing thiamine. Parboiled rice, even when milled, does not lose its thiamine content. Except yellow maize, which contains some amounts of carotene, no other cereal grain is a source of vitamin A or C.

Pulses or legumes as they are called, are rich in proteins. Pulse proteins, however, are of relatively low biological value because of the

deficiency of the essential amino acid *methionine* but they are rich in *lysine*. Pulses are not rich sources of minerals but they are rich in B-vitamins. Dried pulses do not contain vitamin C but if they are germinated significant amounts of vitamin C are generated.

Most of the green leafy vegetables are rich sources of calcium, iron, carotene, vitamin B₂, riboflavin and folic acid.

Roots and tubers are rich in carbohydrates. But roots like carrot are also rich in carotene (Vitamin A); Those like potato contain significant amounts of vitamin C, while roots like tapioca contain calcium also.

Other vegetables are those which do not fall into the category of leafy vegetables or root vegetables. These vegetables are shoots, like lady's finger, cucumber, tomato, bitter gourd, snake gourd, brinjal, etc. They are fairly good sources of vitamins and minerals.

Nuts and oil seeds are good sources of fat (oil), protein and minerals and fair sources of vitamins: eg., groundnut and cashewnut.

Fruits in general are rich in vitamin C, particularly, gooseberry (amla), guava (perakka) and citrus fruits. Yellow fruits like mango and papaya contain carotene and dried fruits like dates are sources of iron.

Fish and sea foods are rich sources of protein, B-vitamins and also minerals, especially calcium.

Fleshy foods are rich sources of protein and B-vitamins, especially B₁₂. They are generally deficient in vitamin A, but liver is an exception.

Egg is a rich source of all nutrients except vitamin C. Its protein is of high quality.

Milk & Milk products. Milk is an ideal food for infants and young children and a good supplementary food for all. It contains all vital nutrients, except vitamin C and iron.

Food is the only source of energy for humans. This means that our dietary sheet must change according to our requirements of energy and meals must be planned.

Good food selection, the cornerstone of good nutrition, must be learned as unfortunately there is no automatic built-in mechanism in human beings to direct the choice of foods which build healthy bodies and which keep them running satisfactorily from day to day.

The question what food we should eat and how much, depends on the amount of energy we need. Food energy is measured in terms of heat units called calories. A physiological calorie, also called large calorie or kilocalorie (abbreviated as Kcal), is the amount of heat necessary to raise the temperature of one kilogram of water by one degree centigrade. One gram of protein or carbohydrate yields 4 calories. One gram of fat yields 9 calories while the same quantity of alcohol yields 7.

Composition of a Balanced Diet

	Vege- tarian	Non-Vege- tarian	Vege- tarian	Non- vegetarian		
Foodstuffs	Amount (g)	Calories	Protein (g)			
Cereals	325	325	1150	29	1150	29
Dal & Nuts	100	50	320	22	160	11
Milk	200	100	235	8	117	4
	(ml)	(ml)				
Root						
Vegetables	150	150	145	2	145	2
Other						
Vegetables	100	100	50	3	50	3
Leafy						
Vegetables	100	100	"	"	"	"
Fruits	100	100	80	-	80	-
Egg	(1 no.)	50	-	-	85	6
Meat/Fish	-	100	-	-	195	18
Fat	50	50	450	-	450	-
Sugar/ Jaggery	30	30	120	-	120	-
Total			2550	64	2552	73

Vitamin/Year Discovered	Chief Metabolic Function	Effects of Deficiency
Fat-Soluble Vitamins		
Vitamin A (Retinol) 1913	Essential for normal growth and development; for normal function of epithelial cells and normal development of teeth and bones. Prevents night blindness.	Retarded growth. Reduced resistance to infection. Abnormal function of gastrointestinal, genitourinary, and respiratory tracts due to altered epithelial membranes. Interferes with production of "night purple".
Vitamin D (Cholecalciferol) 1925	Regulates absorption of calcium and phosphorus from the intestinal tract. Affords antiachitic activity.	Interferes with utilisation of calcium and phosphorus in bone and teeth formation. Development of bone disease, rickets, caries.
Vitamin E (Tocopherols) 1936	Protects tissues, cell membranes, and Vitamin A against peroxidation. Helps strengthen red blood cells.	Decreased red blood cell resistance to rupture.
Vitamin K (Phytomenadione) 1935	Essential for formation of normal amounts of prothrombin and blood coagulation.	Diminished blood clotting time. Increased incidence of hemorrhages.
Water-Soluble Vitamins		
Vitamin B1 (Thiamin) 1936	An important aid in carbohydrate metabolism. Needed for proper functioning of the digestive tract and nervous system.	Loss of appetite. Impaired digestion of starches & sugars. Various nervous disorders, beriberi. Loss of muscle coordination.
Vitamin B2 (Riboflavin) 1935	Needed in formation of certain enzymes and in cellular oxidation. Prevents inflammation of oral mucous membranes and the tongue.	Impaired growth, lassitude & weakness. Causes cheilosis or glossitis. May result in photophobia and cataracts.
Vitamin B6 (Pyridoxine) 1934	Acts, as do other B vitamins, to break down protein, carbohydrate, and fat. Acts as a catalyst in the formation of niacin from tryptophan.	Increased irritability, convulsions, and peripheral neuritis. Anorexia, nausea & vomiting.
Vitamin B12 (Cyanocobalamin) 1948	Essential for development of red blood cells. Required for maintenance of skin, nerve tissues, bone and muscles.	Results in pernicious anaemia. Weakness, fatigue, sore & cracked lips.
Vitamin C (Ascorbic Acid) 1919	Needed to form the cementing substance, collagen, in various tissues (skin, dentine, cartilage, and bone matrix). Assists in wound healing; bone fractures.	Lowered resistance to infections, susceptibility to dental cavities, pyorrhea, & bleeding gums. Delayed wound healing. Specific treatment for scurvy.
Other vitamins in the B complex include : Nicotinic acid, Pantothenic acid, Folic acid, Biotin, Lipic acid, Choline and Inositol.		

The following tables show the height-weight ratio of Adolescents and Adults.

Adolescents: Height-Weight Ratio

Boys			Girls	
Height (cm)	Weight (kg)	Age (yrs)	Height (cm)	Weight (kg)
112.4	19.2	5+	112.5	18.6
118.8	21.9	5+	117.8	20.5
123.2	24.3	7+	123.2	23.8
127.9	26.1	8+	127.2	26.0
133.3	29.2	9+	132.5	29.0
138.0	31.0	10+	138.2	32.6
142.7	34.0	11+	145.1	36.3
148.4	37.8	12+	151.5	42.5
155.0	42.4	13+	153.8	43.9
162.6	47.3	14+	154.5	45.0
165.5	51.1	15+	155.8	47.3
168.9	54.8	16+	155.8	49.0

Adults: Height-Weight Ratio

Men				Women			
Weight (in kg)				Weight (in kg)			
Ht	Age			Ht	Age		
cms	20	35	50	cms	20	35	40
148	42.7	47.6	50.9	148	38.6	44.0	47.3
153	45.4	50.4	53.5	150	40.3	44.8	47.3
158	48.6	53.5	56.3	153	41.9	46.6	49.0
163	51.1	56.3	59.4	155	42.8	47.7	50.0
168	54.0	60.1	63.7	158	44.9	49.5	52.0
173	58.1	64.0	68.3	160	46.0	50.6	53.0
178	61.9	68.5	72.4	163	47.3	52.1	54.0
183	66.0	73.3	77.8	165	49.1	54.1	57.0

Inventions

Scientific inventions and discoveries are important because they lead to the creation of mechanisms and artifacts which improve or ease our living conditions. However, there is often a long time lag before the inventions are transformed into working utilities.

Reviewing some 46 discoveries between 1900 and 1950, *A History of Technology* edited by Trevor I. William points out that the longest intervals – 50 to 80 years – were taken up by the fluorescent lamp and the cotton picker and the shortest – one year – by Freon refrigerants.

Inventions and discoveries come about sometimes by accident but mostly by design. Roentgen discovered X-ray by accident in 1895 but the Curies laboriously pursued the radium and discovered it eventually in 1898. Most of the discoveries in the 20th century were the results of purposeful investigations and experiments, though some like penicillin were discovered accidentally.

Accidental discoveries are, in fact, few and far between but even then only a scientist of unusual acumen can identify it as a discovery in the first instance. Others might have noticed the same thing before to no purpose. The classic instance is the Archimedes Principle. Thousands of people would have noticed that when they got into a full tub some water flowed out. But Archimedes, alone among the thousands, could see a principle in it.

All these inventions have turned out to be quite beneficial in peacetime. Rocketry and missiles opened the way for space exploration and the epochal landing of man on the Moon. Atomic power is now being harnessed for peaceful uses. Radar and Sonar have been helpful in a number of ways. Sonar, for instance, has made commercial fisheries safer and more productive.

Invention today is tied to industrial method and production. An invention does not come into common use, and thereby encourage further invention, until it has been mass-produced and fitted with standardized, interchangeable parts. Only by being made in large quantities and by being widely distributed is it actually tested through use. This wide use produces further improvements and changes, which may in themselves become new inventions.

A distinguishing feature of 20th century research is the fact that it represents systematic invention: it is largely devoted to technological research, discovery, and innovation. In order to accomplish this, many persons are brought together from a wide array of disciplines to form the research team, each member contributing his own specialized knowledge. At the same time, modern research embodies a new methodology based on the systematic application of science to technology. Thus the long list of inventions that started in the prehistoric past appears to be continuing.

Invention	Date	Inventor	Country
Adding Machine	1623	Wilhelm Schickard	Germany
Aeroplane	1903	Orville & Wilbur Wright	U.S.A.
Airship (non-rigid)	1852	Henri Giffard	France
Airship (rigid)	1900	G.F. von Zeppelin	Germany
Artificial Heart	1957	Willem Kolff	Netherlands
Atomic Bomb	1945	J. Robert Oppenheimer	USA
Automatic rifle	1918	John Browning	USA
Bakelite	1907	Leo H. Baekeland	Belgium
Ballistic missile	1944	Wernher von Braun	Germany
Balloon	1783	Jacques & Joseph Montgolfier	France
Ball-Point	1888	John J. Loud	U.S.A.
Barometer	1644	Evangelista Torricelli	Italy
Battery (Electric)	1800	Alessandro Volta	Italy
Bicycle	1839-40	Kirkpatrick Macmillan	Britain
Bicycle Tyres (pneumatic)	1888	John Boyd Dunlop	Britain
Bifocal Lens	1780	Benjamin Franklin	U.S.A.
Bolt-action rifle	1889	P. von Mauser	Germany
Bunsen Burner	1855	R. Wilhelm von Bunsen	Germany
Burglar Alarm	1858	Edwin T. Holmes	U.S.A.
Car (steam)	c. 1769	Nicolas Cugnot	France
Car (Petrol)	1888	Karl Benz	Germany
Carburettor	1876	Gottlieb Daimler	Germany
Carpet Sweeper	1876	Melville R. Bissell	U.S.A.
Cash Register	1879	James Ritty	U.S.A.
Cellophane	1908	Dr. J. Brandenberger	Switzerland
Celluloid	1861	Alexander Parkes	Britain
Cement (Portland)	1824	Joseph Aspdin	Britain
Chronometer	1735	John Harrison	Britain
Cinema	1895	Nicolas & Jean Lumiere	France
Clock (mechanical)	1725	I-Hsing & Liang Ling-Tsan	China
Clock (Pendulum)	1656	Christian Huygens	Netherlands
Dental Plate	1817	Anthony A. Plantson	U.S.A.
Dental Plate (Rubber)	1855	Charles Goodyear	U.S.A.
Diesel Engine	1895	Rudolf Dieself	Germany
Disc Brake	1902	Dr. F. Lanchester	Britain
Dynamo	1832	Hypolite Pixii	France
Electric Blanket	1883	Exhibited at the Vienna Exhibition	
Electric Flat Iron	1882	H.W. Seeley	U.S.A.
Electric Furnace	1861	William Siemens	Britain
Electric Lamp	1879	Thomas Alva Edison	U.S.A.
Electric Motor (DC)	1873	Zenobe Gramme	Belgium
Electric Motor (AC)	1888	Nikola Tesla	U.S.A.
Electro-Magnet	1824	William Sturgeon	Britain
Electroplating	1805	Luigi Brugnatelli	Italy
Electronic Computer	1824	Dr. Alan M. Turing	Britain
Facsimile	1843	Alexander Bain	Britain
Film (moving outlines)	1885	Louis Prince	France
Film (talking)	1922	J. Engl, J. Mussolle & H. Vogt	Germany
Film (musical sound)	1923	Dr. Le de Forest	U.S.A.
Frequency Modulation (FM)	1933	E.H. Armstrong	U.S.A.
Fountain Pen	1884	Lewis E. Waterman	U.S.A.
Galvanometer	1834	Andre-Marie Ampere	France
Gas Lighting	1792	William Murdock	Britain
Glass (stained)	c. 1080	Augsburg	Germany
Glassware	c. 1500 B.C.		Egypt & Mesopotamia
Glider	1853	Sir George Cayley	Britain
Gramophone	1878	Thomas Alva Edison	U.S.A.
Guided missile	1942	Wernher von Braun	Germany

Gyro-compass	1911	Elmer A. Sperry	U.S.A.
Helicopter	1924	Etienne Oehmichen	France
Holography	1947	Denis Gason	Britain
Hovercraft	1955	Christopher Cockerell	Britain
Hydrogen bomb	1952	Edward Teller	USA
Iron Working (Carbonized)	c. 1200 B.C.		Cyprus & N. Palestine
Jet Engine	1937	Sir Frank Whittle	Britain
Laser	1960	T. H. Maimah	U.S.A.
Launderette	1934	J.F. Cantrell	U.S.A.
Lift (Mechanical)	1852	Elisha G. Otis	U.S.A.
Lightning Conductor	1752	Benjamin Franklin	U.S.A.
Linoleum	1860	Frederick Walton	Britain
Linotype	1883	O. Margenthaler	U.S.A.
Locomotive	1804	Richard Trevithick	Britain
Loom, power	1785	E. Cartwright	Britain
Loudspeaker	1900	Horace Short	Britain
Machine Gun	1718	James Puckle	Britain
Magnetic Recording Tape	1928	Fritz Pfleumer	Germany
Maps	c. 3800 B.C.	Sumeria (clay tablets of river Euphrates)	
Margarine	1869	Hippolyte M. Mouries	France
Match, safety	1826	John Walker	Britain
Microphone	1876	Alexander Graham Bell	U.S.A.
Micro-processor	1971	Robert Noyce & Gordon Moore	U.S.A.
Microscope	1590	Z. Janssen	Netherlands
Microwave Oven	1947	Percy L. Spencer	U.S.A.
Motor Cycle	1885	G. Daimler of Cannstatt	Germany
Movie Projector	1893	Thomas Edison	U.S.A.
Neon Lamp	1910	Georges Claude	France
Neutron bomb	1958	Samuel Cohen	USA
Nylon	1937	Dr. Wallace H. Carothers	U.S.A.
Optical Fibre	1955	Narinder Kapany	Germany
Paper	A.D. 105		China
Parachute	1797	A.J. Garnerin	France
Parchment	c. 1300 B.C.		Egypt
Parking Meter	1935	Carlton C. Magee	U.S.A.
Parallel Computing	1979	Seymour Cray & David Gelerntes	U.S.A.
Pasteurization	1867	Louis Pasteur	France
Photoelectric cell	1893	Julius Elster, Hans F. Geitel	Germany
Photography (on metal)	1826	J.N. Niepce	France
Photography (on paper)	1835	W.H. Fox Talbot	Britain
Photography (on film)	1888	John Carbutt	U.S.A.
Porcelain	851		Earliest report from China
Potter's Wheel	c. 6500 B.C.		Asia Minor
Printing Press	c. 1455	Johann Gutenberg	Germany
Printing (rotary)	1846	Richard Hoe	U.S.A.
Printing (Web-fed rotary)	1865	William Bullock	U.S.A.
Propeller (ship)	1837	Francis Smith	Britain
Pyramid	c. 2685 B.C.		Egypt
Radar	1922	A.H. Taylor & Leo C. Young	U.S.A.
Radio Telegraphy	1864	Dr. Mahlon Loomis	U.S.A.
Radio Telegraphy (Trans Atlantic)	1901	G. Marconi	Italy
Rayon	1883	Sir Joseph Swan	Britain
Razor (electric)	1931	Col. Jacob Schick	U.S.A.
Razor (safety)	1895	King C. Gillette	U.S.A.
Record (long-playing)	1948	Dr. Peter Goldmark	U.S.A.
Refrigerator	1850	James Harrison, Alexander Catlin	U.S.A.
Rubber (latex foam)	1928	Dunlop Rubber Co.	Britain
Rubber (Tyres)	1846	Thomas Hancock	Britain
Rubber (vulcanised)	1841	Charles Goodyear	U.S.A.
Rubber (waterproof)	1823	Charles Macintosh	Britain

ik Cube	1975	Prof. Emo Rubik	Hungary
ety Pin	1849	Walter Hunt	U.S.A.
atch Tape	1930	Richard Drew	U.S.A.
-starter	1911	Charles F. Kettering	U.S.A.
ving Machine	1829	Barthelemy Thimmonnier	France
p (sea-going)	c. 7250 B.C.	Grecian ships	
p (steam)	1775	J.C. Perier	France
p (turbine)	1894	Hon. Sir C. Parsons	Britain
k Manufacture	c. 50 B.C.		China
yscraper	1882	W. Le Baron Jenny	U.S.A.
de Rule	1621	William Oughtred	Britain
ectacles (convex)	1289		Venice, Italy
inning Frame	1769	Sir Richard Arkwright	Britain
inning Jenny	1764	James Hargreaves	Britain
inning Mule	1779	Samuel Crompton	Britain
eam Engine	1698	Thomas Savery	Britain
eam Engine (piston)	1712	Thomas Newcomen	Britain
eam Engine (condenser)	1765	James Watt	Britain
eel Production	1855	Henry Bessemer	Britain
eel (stainless)	1913	Harry Brearley	Britain
bmarine	1776	David Bushnell	U.S.A.
per Computer	1976	J.H. Van Tassel	U.S.A.
nk	1914	Sir Ernest D. Swington	Britain
legraph	1787	M. Lammond	France
legraph Code	1837	Samuel F.B. Morse	U.S.A.
lephone (Imperfect)	1849	Antonio Meucci	Italy
lephone (Perfected)	1876	Alexander Graham Bell	U.S.A.
lescope	1608	Hans Lippershey	Netherlands
levision (mechanical)	1926	John Logie Baird	Britain
levision (electronic)	1927	P.T. Farnsworth	U.S.A.
ylene	1941	J.R. Whinfield, J.T. Dickson	Britain
ermometer	1593	Galileo Galilei	Italy
ransformer	1831	Michael Faraday	Britain
ransistor	1948	Bardeen, Shockley & Brattain	U.S.A.
ypewriter	1808	Pellegrine Tarri	Italy
deo tape	1956	Charles Ginsberg	U.S.A.
elcro (hook-and-loop-fastener)	1948	G. de Mestral	Switzerland
ashing Machine (elec.)	1907	Hurley Machine Co.	U.S.A.
atch	1462	Bartholomew Manfredi	Italy
ater Closet	1589	Designed by J. Harrington	Britain
elder (electric)	1877	Elisha Thomson	U.S.A.
heel	c. 3300 B.C.	Sumerian civilization	
indmill	c. 600	Persian corn grinding	
ireless (telegraphy)	1896	G. Marconi	Italy
riting	c. 3500 B.C.	Sumerian civilization	
-ray	1895	Wilhelm K. Roentgen	Germany
ip Fastener	1891	W.L. Judson	U.S.A.

Milestones in Medicine

ayurveda	2000-1000	BC	Atreya	India
Western Scientific Therapy	460-370	BC	Hippocrates	Greece
oga	200-100	BC	Patanjali	India
ashtanga Hridaya	c. 550	AD	Vagbhata	India
idhayoga	c. 750		Vrdukunta	India
anatomia*	1316		Mondino	Italy
hemotherapy	1493-1541		Paracelsus	Switzerland
First book on Anatomy				

Blood Transfusion	1625	Jean-Baptiste Denys	France
Circulation of blood	1628	William Harvey	Britain
Biochemistry	1648	Jan Baptista Van Helmont	Belgium
Bacteria	1683	Leeuwenhock	Netherlands
Neurology	1758-1828	Franz Joseph Gall	Germany
Physiology	1757-66	Albrecht Von Haller	Switzerland
Vaccination	1796	Edward Jenner	Britain
Histology	1771-1802	Marie Bichat	France
Stethoscope	1819	Rene Laennec	France
Embryology	1792-1896	Kari Ernest-Van Baer	Estonia
Morphine	1805	Friderich Sertumer	Germany
Chloroform as anaesthetic	1847	James Simpson	Britain
Hypodermic Syringe	1853	Alexander Wood	Britain
Rabies Vaccine	1860	Louis Pasteur	France
Bacteriology	1872	Ferdinand Cohn	Germany
Leprosy Bacillus	1873	Hansen	Norway
Cholera. T.B. germs	1877	Robert Koch	Germany
Malaria germs	1880	Laveran	France
Diphtheria germs	1883-84	Klebs & Löffler	Germany
Aspirin	1889	Dreser	Germany
Virology	1892	Ivanovski & Bajernick	USSR, Netherlands
Psycho-analysis	1895	Sigmund Freud	Austria
Serology	1884-1915	Paul Ehrlich	Germany
Anti-toxins			
(science of immunity)	1890	Behring & Kitasato	Germany, Japan
Adrenaline	1894	Schafer and Oliver	Britain
Endocrinology	1902	Bayliss & Starling	Britain
Electro-cardiograph	1903	Willem Einthoven	Netherlands
Typhus Vaccine	1909	J. Nicolle	France
Sex hormones	1910	Eugen Steinach	Austria
Vitamins	1912	Sir F. G. Hopkins	Britain
Vitamin A	1913	McCollum and M. Davis	USA
Vitamin C	1919	Froelich Holst	Norway
Synthetic Antigens	1917	Landsteiner	USA
Thyroxin	1919	Edward Calvin-Kendall	USA
Insulin for Diabetes	1921	Banting & Best	Canada
Vitamin D	1925	McCollum	USA
Penicillin	1928	Alexander Fleming	Britain
Electro-encephalogram	1929	Hans Berger	Germany
Cardiac Pacemaker	1932	A.S. Hyman	USA
Vitamin B1	1936	Minot & Murphy	USA
Cortisone	1936	Edward Calvin-Kendall	USA
D.D.T. (Dichloro-Diphenyl- Trichloroethane)	1939	Paul Muller	Germany
Rh-factor	1940	Karl Landsteiner	USA
LSD (Lysergic acid diethylamide)	1943	Hoffman	Switzerland
Streptomycin	1944	Selman Waksman	USA
Kidney Machine	1944	Kolf	Netherlands
Chloromycetin	1947	Burkholder	USA
Aureomycin	1948	Duggar	USA
Reserpine	1949	Jal Vakil	India
Terramycin	1950	Finlay & Others	USA
Cryo-surgery	1953	Henry Swan	USA
Open Heart Surgery	1953	Walton Lillehel	USA
Poliomyelitis vaccine	1954	Jonas Salk	USA
Poliomyelitis vaccine (oral)	1954	Albert Sabin	USA
Oral Contraceptive pills	1955	Gregory Pincus	USA
Artificial Heart	1957	Willem Kolff	Netherlands
Use of artificial heart (for surgery)	1963	Michael de Baakey	USA

Heart Transplant Surgery	1967	Christian Barnard	S.Africa
CAT Scanner	1968	Godfrey Hounsfield	Britain
Nuclear magnetic resonance imaging	1971	Raymond Damadian	USA
Recombinant-DNA technology	1972-73	Paul Berg, H.W. Boyer, S. Cohen	USA
First Test Tube Baby	1978	Stephens & Edwards	Britain
Positron Emission Tomography	1978	Louis Sokoloff	USA
Gene Therapy on humans	1980	Martin Clive	USA
Small Pox eradicated	1980	W.H.O. Declaration	
Genes associated with Cancer	1982	Robert Weinberg & others	USA

Elements

An element may be defined as "a substance which cannot be broken down to yield simpler substances by ordinary chemical methods". The elements are the basic substances from which all others are built up by chemical combinations.

Elements found in nature or naturally occurring elements number 92, ranging from Hydrogen, the lightest element (Element 1) to Uranium, (Element 92) the heaviest element. One element Plutonium (Element 94) is found in minute quantities in the ores of Uranium and Thorium.

All elements heavier than Uranium are man-made and are called *Transuranics*. They are produced either in nuclear reactors or accelerators or isolated from the debris of hydrogen bomb explosions. The first of such elements is Neptunium (Element 93) discovered in 1940. The latest is Element 109 discovered in 1982 by the Institute for Heavy Ion Research (GSI) at Darmstadt (West Germany).* Elements up to

103 (1961) are included in the table given below. All man-made elements decay quickly. Element 109, for instance, survives as such for only five-thousandth of a second and turns into Element 107 which after a short time emits an alpha particle and becomes Element 105. Next one of the protons in the nucleus is transformed into a neutron, emitting a positive electron (Positron) in the process and becomes Element 104. This element splits into two and the process of decay is halted.

Elements are numbered according to the number of protons in their atomic nuclei. But the atomic nucleus also contains neutrons which add to the mass of the atom and can affect its stability and radio activity. The atoms of the same element may contain different numbers of neutrons. These are called their isotopes. It is calculated that about 8000 isotopes may exist for the known atoms. Actually only 2000 are known today.

Elements and Symbols		Atomic Number	Atomic Weight	Discoverer	Date
Actinium	Ac	89	227.0	A. Debiere	1899
Aluminium	Al	13	27.0	F. Wohler	1827
Americium	Am	95	243	G. Seaborg & others	1944
Antimony	Sb	51	121.8	B. Valentine	1604
Argon	A	18	39.9	W. Ramsay and J. Rayleigh	1894
Arsenic	As	33	74.9	A. Magnus	(?) 1250
Astatine	At	85	210	E. Segre & others	1940
Barium	Ba	56	137.3	H. Davy	1808
Berkelium	Bk	97	249	S. Thompson & others	1949
Beryllium	Be	4	9.0	N. Vauquelin	1798
Bismuth	Bi	83	209.0	C. Geoffrey the Younger	1953
Boron	B	5	10.8	H. Davy	1808
Bromine	Br	35	79.9	A. Balard	1826
Cadmium	Cd	48	112.4	F. Stromeyer	1817
Calcium	Ca	20	40.1	H. Davy	1808
Californium	Cf	98	251	S. Thompson & others	1950
Carbon	C	6	12.0	....	Prehistoric

Cerium	Ce	58*	140.1	Berzelius, Hisinger & Klaproth	1
Caesium	Cs	55	132.9	R. Bunsen & G. Kirchhoff	1
Chlorine	Cl	17	35.5	K. Scheele	1
Chromium	Cr	24	52.0	N. Vauquelin	1
Cobalt	Co	27	58.9	G. Brandt	c. 1
Copper	Cu	29	63.5	....	Prehist
Curium	Cm	96	248	G. Seaborg & others	1
Dysprosium	Dy	66*	162.5	L. deBoisbaudran	1
Einsteinium	E	99	254	A. Ghiorso & others	1
Erbium	Er	68*	167.3	C. Mosander	1
Europium	Eu	63*	152.0	E. Demarcay	1
Fermium	Fm	100	253	A. Ghiorso & others	1
Fluorine	F	9	19.0	H. Moissan	1
Francium	Fr	87	223	M. Perey	1
Gadolinium	Gd	64*	157.3	J. C. de Marignac	1
Gallium	Ga	31	69.7	L. de Boisbaudran	1
Germanium	Ge	32	72.6	C. Winkler	1
Gold	Au	79	197.0	....	Prehist
Hafnium	Hf	72	178.5	D. Coster & G. De Hevesy	1
Helium	He	2	4.0	J. C. P. Janssen & N. Lockyer	1
Holmium	Ho	67*	164.9	J. Soret & M. Delafontai	1
Hydrogen	H	1	1.0	H. Cavendish	1
Indium	In	49	114.8	F. Reich & T. Richter	1
Iodine	I	53	126.9	B. Courtois	1
Iridium	Ir	77	192.2	S. Tennant	1
Iron	Fe	26	55.9	....	Prehist
Krypton	Kr	36	83.8	W. Ramsay & M. Travers	1
Lanthanum	La	57*	138.9	C. Mosander	1
Lawrencium	Lw	103	257.0	A. Ghiorso & others	Prehist
Lead	Pb	82	207.2	....	Prehist
Lithium	Li	3	6.9	A. Arvedson	1
Lutetium	Lu	71*	175.0	G. Urbain	1
Magnesium	Mg	12	24.3	Recognized by J. Block	1
Manganese	Mn	25	54.9	Recognized by K. Scheele	1
Mendelevium	Mv	101	256	A. Ghiorso & others	Prehist
Mercury	Hg	80	200.6	....	Prehist
Molybdenum	Mo	42	95.9	K. Scheele	1
Neodymium	Nd	60*	144.2	C. Von Welsbach	1
Neon	Ne	10	20.2	W. Ramsay & M. Travers	1
Neptunium	Np	93	237	E. McMillan & P. Abelson	1
Nickel	Ni	28	58.7	A. Cronstedt	1
Niobium	Nb	41	92.9	C. Hatchett	1
(Columbium)	N	7	14.0	D. Rutherford	1
Nitrogen	No	102	254	Fields & others	1
Nobelium	Os	76	190.2	S. Tennant	1
Osmium	O	8	16.0	J. Priestley	1
Oxygen	Pd	46	106.4	W. Wollaston	1
Palladium	P	15	31.0	H. Brand	1
Phosphorus	Pt	78	195.1	D. de Ulloa	1
Platinum	Pu	94	242	G. Seaborg & others	1
Plutonium	Po	84	210.0	P. & M. Curie	1
Polonium	K	19	39.1	H. Davy	1
Potassium	Pr	59*	140.9	C. von Welsbach	1
Praseodymium	Pm	61	147	J. Marnsky & others	1
Promethium	Pa	91	231.0	F. Soddy & others	1
Protactinium	Ra	88	226.1	P. & M. Curie	1
Radium	Rn	86	222.0	Rutherford (thoron isotope)	1
Radon				E. Dorn (radon isotope)	1

enium	Re	75	186.2	E. Noddack & others	1925
odium	Rh	45	102.9	W. Wollaston	1803
idium	Rb	37	85.5	R. Bunsen & G. Kirchhoff	1861
thenium	Ru	44	101.1	K. Claus (or Klaus)	1844
marium	Sm	62*	150.4	L de Boisbaudran	1879
andium	Sc	21	45.0	L. Nilson	1879
enium	Se	34	79.0	J. Berzelium	1817
icon	Si	14	28.1	J. Berzelium	1824
ver	Ag	47	107.9	....	Prehistoric
dium	Na	11	23.0	H. Davy	1807
rontium	Sr	38	87.6	H. Davy	1808
lphur	S	16	32.1	....	Prehistoric
antalum	Ta	73	181.0	A. Ekeberg	1802
echnetium	Tc	43	99	E. Segre & C. Perrier	1937
ellurium	Te	52	127.6	M. von Reichenstein	1782
erbium	Tb	65*	158.9	C. Mosander	1843
hassium	Tl	81	204.4	W. Crookes	1861
horium	Th	90	232.0	J. Berzelium	1828
hulium	Tm	69*	168.9	P. Cleve	1879
in	Sn	50	118.7	....	Prehistoric
itanium	Ti	22	47.9	W. George	1791
ungsten	W	74	183.9	G. & F.d'Ethuyar	1783
(Wolfram)	U	92	238.0	E. M. Peligot	1841
ranium	V	23	51.0	A. Delrio	1801
anadium	Xe	54	131.3	W. Ramsay & M. Travers	1898
enon	Yb	70*	173.0	C. Marignac	1878
terbium	Y	39	88.9	J. Gabolin	1794
trium	Zn	30	65.4	....	Prehistoric
inc	Zr	40	91.2	M. Klaproth	1789
irconium					

Element 108 has not so far been discovered.

Rare Earths: Fifteen elements from atomic number 57 to 71 are collectively known as Rare Earths because they are remarkably similar in their chemical behaviour.

Biotechnology

The term biotechnology was coined during the late 1970s, when the advance in molecular and cell biology catalyzed new industrial ventures to exploit these advances for the benefit of mankind. Biotechnology is the use of living organisms or of substances obtained from living organisms to make products of value to man. Biotechnology is a multidisciplinary subject evolved from the integrated use of life sciences, chemical sciences and engineering sciences. Biotechnology can be broadly classified as Microbial Biotechnology, Plant Biotechnology and Animal Biotechnology based on the kind of biological agent involved.

Biotechnology includes recombinant DNA technology popularly known as genetic engineering, protoplast fusion, hybridoma technology, cell culture, tissue culture, germplasm

development, embryo transfer technology, enzyme and protein engineering, fermentation, biconversion and immobilisation of cells and cellular products.

Biotechnology has immense potential for use in agriculture, forestry, horticulture, medicine, health, chemical industry, food industry, pollution control and environment.

Agriculture Application of biotechnology in the field of agriculture, forestry and horticulture include development of engineered plants through genetic engineering, production of super seeds, food plants with enhanced nutritional value, development of resistance in plants against pests, herbicides, salt and draught, viral diseases, production of fuel and fodder crops, biological nitrogen fixation for food and cereal crops through transfer of nitrogen fixing genes,

production of biofertilizers like *Azolla* and *Azotobacter* and *Rizobium* inoculants, evolving further efficient photosynthetic mechanisms, development of plant growth regulators and hormones, development of specific biocides for control of pests, insects and mosquitoes, plants that produce their own insecticides and herbicides, mass propagation of plants of commercial importance and genetically engineered microbes that will protect plants from freezing.

Micropropagation through tissue culture has vast potential in the mass scale production of ornamentals and foliage plant species and also in the case of field crops. Pomegranate, banana, vegetable crops, cardamom, sugar cane and orchids have already been commercially produced using tissue culture in India. Tissue cultured bamboo, mustard, rice, oil plam, sandal wood, medicinal plants, eucalyptus, turmeric, cotton, papaya, custard, apple, teak, salvadora timber, ferns, rubber, coffee and forest trees are in evaluation and field testing stages.

In nature only limited genetic variability is available for insect resistance and therefore the conventional breeding programmes have been only partially successful. However there are genes in bacteria such as *Bacillus thuringiensis* that encode insecticidal proteins. *B. thuringiensis* strains specifically toxic to dipteran, lepidopteran and coleopteran insects have been identified and the insecticidal protein gene cloned. Using Ti plasmid vectors of *Agrobacterium tumefaciens*, the gene encoding the insecticide protein from *B. thuringiensis* has been transferred to tobacco, tomato, potato, rice, corn and other crop plants. Such transgenic plants incorporate resistance to specific insects that feed on these crops. Another approach of producing insect resistant transgenic plants is to introduce into plants genes that inhibit enzymes responsible for breakdown of protein. Transgenic plants with cowpea (*Vigna sinensis*) protease inhibitor gene have demonstrated resistance to tobacco budworm, corn earworm, armyworm of tomato and tobacco.

From the nutritional point of view, plant proteins per se suffer from amino acid imbalances. By genetic engineering, it may be possible to correct the imbalance of amino acid profiles in seed proteins. Transgenic plants, with the gene for the zein fraction, which improves the lysine content of storage protein in maize have been produced. Aflatoxin of *Lathyrus* sp (Kesaridal) is a neurotoxin that causes a paralysis of limbs known as lathyrism. Engineering plants devoid of the aflatoxin can be achieved by (a) mutating the gene for toxin synthesis so that the toxin is either not produced or produced in low amounts or (b) developing transgenic plants

harbouring the antisense gene so that the gene product is not formed.

The process of biological nitrogen fixation is carried out by free living and symbiotic microorganisms. The symbiotic microorganisms form association with other plants to fix nitrogen. Of these the most important by far, are those belonging to the genus *Rhizobium*. They, by their presence in the root nodules of leguminous plants result in improved grain yield. These *Rhizobium* inoculants are prepared on large scale for commercial use. Biotechnology of *Rhizobium* includes development of strains that withstand storage, and adverse field conditions, enhancement of competitive ability in soil, antibiotic resistance, tolerance to adverse pH, salinity temperature and increasing efficiency in nitrogen fixation by recombinant DNA technology.

In the veterinary sector, biotechnological applications include utilisation of hybridoma technology for animal health care, production of safe and efficient vaccines for infectious diseases, embryo transfer, development of novel techniques in animal breeding through genetic engineering at gamete or gonad level transgenic animals, animal cell culture, development of feed for fish and prawn larvae, production of fish growth hormones by DNA technology, enhancement of nutritive value of fish and prawn through gene technologies, increasing productivity of fishes through hormone technology (induced breeding), production of vaccines employing hybridoma technology and genetic engineering towards controlling mass mortality microbial and viral diseases, improvement in the maintenance of egg through larval stages in hatchery and in ponds, gene manipulation at sperm or egg or zygote level for tolerance and resistance towards stress conditions and extreme environments, transgenic fish and plants etc.

Embryo transfer technology offers scope for achieving faster multiplication of elite livestock and for devising methods for conservation of valuable germplasm. In conjunction with artificial insemination, it offers a powerful tool for increasing the population of a desired type of animal with improved production potential. Surgical and nonsurgical embryo transfers in cattle and buffaloes have been successfully done. Calves from frozen and thawed embryos in cattle have been achieved. It has been possible to split embryos and produce pregnancies. The first bovine split embryo technology calf was produced in November 1988. A buffalo calf of Murrah breed was born through transfer of in vitro fertilized embryo for the first time in the world at the National Dairy Research Institute in Karnal.

An animal birth-control injection called "Tal-sur" has been developed by scientists for sterilization of male animals. It provides a cheap, fast and simple method with few side effects. The techniques will have an impact on efforts to reduce the population of low grade genetic stock of little economic value.

Medicine and Health Development of better and cheaper drugs, better vaccines for several diseases, better antifertility agents, hormone production through genetically engineered bacteria, immunodiagnostic kits, vaccines for cancer, prevention of genetically transmitted diseases, specially targetted drug delivery systems, gene probes and gene therapy are the probable applications of biotechnology.

Monoclonal antibodies (MABs) are used in the diagnosis of sexually transmitted diseases and cancer, in the correction of drug overdose, reduction of risks associated with bone marrow transplants, detection of tumour metastases, treatment of cancer (directly or by targeting cytotoxic drugs) and in the improvement of sensitivity and reproducibility of existing immunoassays or new assays for histocompatibility antigens, blood group antigens, fibronectin, sperm antigens, interleukins, complement components, interferons, progesterone, blood clotting factors and human growth hormone.

Some human proteins with therapeutic potential produced by biotechnological means include interferons, human growth hormone, insulin, tissue plasminogen activator urokinase, epidermal growth factor, interleukin-2, relaxin, tumour necrosis factor, erythropoietin, Factor VII, Factor IX and Lung surfactant protein.

Products generated from cultured animal cells include viral vaccines for foot and mouth, polio, mumps, measles, rubella, rabies, tick bone encephalitis, rinderpest; immunologicals, growth hormones, prolactin ACTH, -interferon (lymphoblastoid) beta Interferon (fibroblastic), Interleukin-4, Thymosin and Plasminogen activator.

Perhaps the most profound impact of the new ability to manipulate DNA will come in the realm of therapy for the human hereditary diseases, which are caused by defective genes. The hereditary diseases that are currently the best candidates for gene therapy are those in which the defect can be corrected by introducing a good new gene into bone marrow cells.

Food Applications of biotechnology in food industry mainly include efficient grain storage by eliminating pests and rodents, increased nutritive value of foods, better preservation of food, enhancement of flavor, single cell protein, fermented foods through enzyme engineering, mushroom cultivation, food algae and prevention of spoilage.

The production of microbial proteins (SCP - single cell protein) has been practised since First World War when Delbruck in Berlin developed brewer's yeast on a large scale. The cells were mainly incorporated into soups and sausages. Even during the Second World War, food yeasts including *Candida arborea* and *Candida utilis* had been frequently used in Germany. SCP is a potential protein source food for humans or animals. At present SCP processes for the production of animal feed are the most attractive since conventional animal feed stuffs such as soyabean meal and fish meal are being imported to many tropical and subtropical countries. For human use, microbes used are primarily *Saccharomyces cerevisiae* and *Candida utilis* and are fully accepted by public health authorities for human consumption.

Biotechnology has already had a market impact in the sweetener industry. The availability of the enzyme glucose isomerase, invertase and amylase has made the production of high fructose corn sweeteners (HFCS) very profitable.

Baker's yeast, wine, ale, sake, lager, beer, soy sauce, sour french bread, Yogurt, cheeses, vinegar and tempeh, are some of the food and beverages obtained from microorganism. L-lysine, 5' Inosinic acid and 5' -Guanylic acid are the aminoacids and flavor-enhancing nucleotides produced using bacteria.

Industry Production of fine chemicals from agricultural wastes through microbial processes, plant cells, animal cells; production of antibiotics, vitamins, aminoacids, steroids, biofuel employing microbial transformation and preservation of industrial products from spoilage are some of the major applications of biotechnology.

Biotechnological applications in the environment include biodegradation of man-made chemicals - plastics, polymers and synthetic materials employing mutant microbes, management of hazardous wastes like pesticides, treatment of sewage and industrial effluents, indicators of pollution - (use of microbes), development of new species of bacteria by genetic engineering to clean oil spills and hydrocarbon wastes, enhancement of oil recovery, control of microbial corrosion, bioleaching, biomining, prevention of communicable diseases through vector control and disposal of solid wastes, biogas generation from wastes, control of air pollution, biosensors for environmental monitoring, biomass production etc.

Ethanol, methanol, methane and hydrogen are some fuels from microbial processes. Wastes rich in carbohydrates on transformation of microbial fermentation yield glucose and dextrans. The resulting glucose is used as substrate for production of ethanol by fermentation.

Cellulosic wastes also contribute ethanol production.

Sewage treatment is carried out by aerobic and anaerobic microorganisms. The effluents from yeast oil and cider breweries from dairies and from potato starch factories can be efficiently processed by an anaerobic process in which the active biological compound is recycled and which produces less residual sludge as well as less offensive odours. Bacteria, algae, protozoa and other microbes cooperate in sewage ponds to break down the organic wastes.

Strains of *Pseudomonas* can degrade diverse hydrocarbon molecules and toxic aromatic compounds such as benzene, toluene and xylene. *Pseudomonas putida* has plasmids carrying the genes for degrading four hydrocarbons. Certain microbes which cannot by themselves degrade a given molecule, often modify the molecule in such a way that it will be degraded by other microbes. This is known as cometabolism. The powerful insecticide permethrin is decomposed by cometabolism by *Pseudomonas aeruginosa* and *P. stutzeri*.

Superconductivity

Conductors have eaten up roughly 50 percent of all the power produced all over the world so far. This is sheer waste. Scientists and engineers have always wondered whether carriers of electric current could not be made superconductive so that this waste is avoided. Recent discoveries indicate this is indeed possible. Frantic efforts are afoot to pull the magic wire first.

Once realised, this will mean a technological revolution with a potential impact as great as the industrial revolution or probably even greater. Besides saving phenomenal amounts of electric energy, superconductivity opens up amazing possibilities like bullet trains that move at several hundreds of kilometres per hour on cushions of magnetism, high-power small-size electric cars, computers miniaturised many times more despite being many times more powerful, nuclear reactors safer and yielding many times more energy (from nuclear fusion) and diagnostic aids of extra-dimensions.

The crucial question is what makes the current-carriers of today resistant. Temperature has been known to be one factor contributing to carrier-resistance. The only way to make today's carriers of electricity superconductive is to lower their temperature to the rock bottom or what is known as Absolute Zero or zero degree kelvin which is minus 273°C.

Conductors cooled to this frigid limit lose all resistance to the flow of current through them. But maintaining the lowest temperature on Earth is very expensive and difficult. This was why superconductivity remained a mere curiosity in research labs though it was discovered way back, at the beginning of this century.

It was Heike Kamerlingh Onnes, a Dutch physicist, who discovered superconductivity. The year was 1911. He was studying the variation of the electrical resistance of mercury with

temperature. At temperatures within a few degrees of absolute zero, the resistance dropped sharply to an unmeasurably small value. The transition to superconductivity, however, was found to involve more than simply very high infinite electrical conductivity. In 1933, Meissner and R. Ochsenfeld discovered that a superconductor placed in a not-too-large magnetic field expelled the field from the interior of the conductor. Thus, further possibilities were thrown open.

But superconductivity could be established only at the low temperature of 4.2 K. This is the point at which helium gas liquefies. Superconducting devices had to be immersed in liquid helium in tightly sealed and heavily insulated containers. The cost was prohibitive. This limited the use of this technology to a few devices—a Japanese prototype of a magnetically levitated train, some particle accelerators, a few magnetic resonance imaging machines and some magnetic 'bottles' in fusion research centres.

It was in this context that the floodgates opened during the past year. Researchers stumbled upon an unusual class of chemical compounds. These too had to be cooled to become superconductive but only to temperatures in the vicinity of 100 K. Liquid helium could be replaced by liquid nitrogen which is cheaper. These new substances were found to be capable of generating intense magnetic fields too.

The materials originally known to be superconductive at low temperatures (lead, tin, mercury etc.) were known to lose this capability as soon as enough current was flowing through them to generate significant magnetic fields. But the ceramics, the alloys of oxides of niobium and titanium, kept their superconductivity despite strong magnetic fields.

But do wait they may, till 1973, scientists could not raise the superconducting temperature.

ture beyond 23 K. It was Karl Alex Muller of IBM's Zurich laboratory who decided to try metallic oxides known as ceramics. Ceramics are very poor conductors at room temperatures, making them fit for use as electrical insulators. Muller raised the transition temperature to 35 K. But the world of physics laughed at him, though not everybody. The Japanese and the Chinese took him very seriously.

They repeated his experiments and the temperature rose to 38 K. Paul C.W. Chu of Houston University, who had been studying superconducting materials since 1955, took up the challenge. He pressurised a superconducting material and found that the transition temperature could be raised to 52 K. But he found that was the limit. At pressures greater than 10 to 12 thousand times normal atmospheric pressure, the molecular structure of the superconducting material got damaged. More pressure did no good.

Cleverly, Chu replaced the barium in the sample with strontium which is smaller in atomic structure. This was to reduce the size of the compound's molecules from within. The transition temperature could be upped by two more degrees. But when he tried calcium, an element with still smaller atoms, the transition temperature dropped. Chu then tried lanthanum. And one of Chu's graduate students, Maw-Kuen Wu, replaced lanthanum with another rare earth element, yttrium.

Rare earths are not really very rare. For example, yttrium is more abundant than lead. The word rare, in this case, is a misnomer. India and China are two countries having the world's largest rare earth deposits. Wu and Chu thus raised the temperature to 93 K, first and to 98 K a few days later.

Reliable superconductivity at room temperature is expected to be achieved any minute now. When this happens, it will be a major event of the century, like the discovery of transistors during the 1950s. And scientists at the National Physical Laboratory claim to have achieved room temperature superconductivity under laboratory conditions.

Fundamentalists among superconductivity researchers are studying why the ceramics lose their electrical resistance. They are frantically shooting high magnification (electron microscope) pictures of materials to find out defects, if any, in the structure of molecules. Others are using pulsed beams of neutrons, ultrasonic beams and X-rays.

The West is intrigued by the report that the temperature record set by Chu and Wu is being matched and even surpassed by researchers in India and Japan. The latest report is as high as 240 K which is warmer than the Siberian winter. This means that somebody is on the brink of

ultimate success. In the past year, the transition temperature has increased by a factor of four. If it increases by the same factor in the same period again, we will have room temperature superconductivity in less than one year from now.

But there is many a hurdle yet to be cleared. One is the technology of usable shapes of the superconducting materials, worse still, if these materials are ceramic. How brittle materials of ceramic is no secret for anyone who has dropped a rice bowl.

High-Temperature Superconductivity

A huge amount of energy is washed in the act of pushing electricity through wires. The phenomenon of resistance, a sort of friction that goes on at the atomic level, guarantees that some of the current intended to run electric motors or power lights is instead converted into waste heat. Superconductors are the only class of materials immune to this problem: they can carry current with no resistance whatever.

Until 1986, though, the only superconductors known to science worked exclusively at temperatures close to absolute zero (-273°C), and therefore had to be cooled with expensive, hard-to-handle liquid helium. Then scientists found a new type of ceramic superconductor (previous ones had been metals) that worked at a much balmier -180°, and could be cooled with cheap liquid nitrogen.

Even then, however, nobody could figure out how to work with the brittle, crumbly stuff. But scientists at Los Alamos National Laboratory, in the U.S., have announced that they've managed to mould the high-temperature superconductor into a thin, flexible tape that can carry more than 1200 times as much current as household copper wire with no resistance at all. Japanese labs aren't far behind in developing comparable technology. That means the futuristic-sounding applications scientists have routinely trumpeted when talking about superconductivity are suddenly within reach. They include superefficient power lines, tiny but powerful electric motors, trains that fly on cushions of electromagnetic energy and hand-held scanning machines that will enable doctors to peer inside the human body.

Cryogenics

Cryogenics is one of the youngest sciences, having come into existence only in the 20th century. The name 'Cryogenics' is derived from a Greek word meaning, 'productive of cold'. Cryogenics deals with the production of 'very low' temperatures and the study of their physical and technological consequences.

'Very low' temperatures are generally taken to mean temperatures below -150°C and thereabouts. Absolute Zero (-273.16°C) clearly belongs to the domain of cryogenics. It is apparently unattainable on Earth.

The lowest temperature that we have reached or rather produced on Earth is only one-millionth of a degree above Absolute Zero. Scientists the world over are continuously working at reaching at least one-hundredth of the degree Absolute. This is a world far below the freezing point as we understand it. In this sub-freezing world strange things happen.

All known elements freeze solid, except helium which remains liquid. Rubber becomes so brittle that it shatters like glass. Lead rings like a bell when struck. Air freezes into a solid block. All these happen not at the point of Absolute

Zero but within about 10 points above it.

Helium, the second lightest of all gases (the lightest is hydrogen), has proved to be a very slippery and recalcitrant gas. Curiously enough, this gas was first found in 1868 in the Sun's atmosphere by Sir Norman Lockyer, the British astronomer, through the spectroscope. In 1895 Sir William Ramsay found it on Earth in the uranium ore - *Clevite*. Later it was established that helium is found in all radioactive minerals and that it is released on Earth by the radioactive decay of these minerals. Ordinary air contains 1 part of the helium in 200,000 parts of air.

Helium has several usable advantages. It is inert and noninflammable. It is used for inflating airships. It resisted all attempts at liquefaction till 1908, when it succumbed to Dr. Kamerlingh-Onnes at Leyden. Thus, it is the last gas to be liquefied. Liquid helium has many remarkable properties which are not wholly understood as yet. It is indispensable in cryogenics as a medium to cool other substances to temperatures near the Absolute Zero. It is the only element that we know of which refuses to solidify even in the dangerous vicinity of Absolute Zero.

Temperature Scales

Three systems of temperature measurement are now in use - the Celsius scale, the Fahrenheit scale and the Kelvin scale.* The Celsius scale was worked out by the Swedish physicist and astronomer Anders Celsius in 1742.

It appears to have been revised by another Swedish physicist J.P. Christen. This scale was originally known as the Centigrade. It was re-named Celsius scale in honour of its inventor Celsius. The Fahrenheit scale was devised by the German-born physicist Gabriel Daniel Fahrenheit (1686-1736) around 1715. The Kelvin scale was pioneered by the British physicist William Thompson Kelvin (1824-1907), later Lord Kelvin.

The International System of Units (SI) recognises the Celsius and Kelvin scales. The Kelvin scale is derived from thermodynamics and is of special importance to scientists. The scale generally used by all is the Celsius. The unit of temperature adopted by the SI is based on the Triple Point of Water, that is, the

temperature at which solid, liquid, and gaseous water are all in equilibrium. The triple point has been defined as 273.16°K (Kelvin) which is equivalent to 0.01°C . Zero degree Kelvin is the Absolute Zero. This corresponds to -273.16°C and -459.69°F .

Absolute Zero is a thermodynamic concept, that is to say, it is based on heat energy. It is the point at which molecules have no heat energy. At this point all motion stops. Even atomic particles slow down.

Conversion Formula

Celsius to Kelvin: $K = C + 273.16$

Fahrenheit to Celsius: $C = (F - 32) \times 5/9$

Celsius to Fahrenheit: $F = C \times 9/5 + 32$

* In 1730 Rene Reaumur devised an alcohol thermometer with a graduated scale 0° to 80° , 0° being the freezing point of water and 80° the boiling point. It was popular for a time but gradually went out of use.

† In 1967 the notation degree Kelvin ($^{\circ}\text{K}$) was replaced by Kelvin (K).

One of the surprises at low temperatures is *superfluidity*. If liquid helium is poured into a flask, separated into two chambers by a partition, it seeps through the solid partition to come level in both chambers.

Another surprising phenomenon is *superconductivity*. Superconductivity was first discovered at the University of Leyden in 1911 by H. Kammerlingh-Onnes, who was awarded the Nobel Prize in 1913 for his earlier work of liquefying helium. However, it was only in 1957 that the theory caught up with experiment. Nobel Prize winner Dr. John Bardeen (1956) of the University of Illinois and his associates presented the first theory of superconductivity in 1957. The theory is based on quantum mechanics and is highly technical. Some 300 materials - 25 elements and the rest alloys or compounds - are, now known to be superconductors.

The application of superconductivity (that is, the total disappearance of electrical resistance) to electric power engineering promises to increase capacity, reduce cost and improve reliability of power grids. A transmission line made of superconducting niobium and roughly the diameter of the arm, can carry as much power as the peak load now being used in the whole of the United States.

Cryogenics has several of other applications. Rapid freezing by liquid nitrogen, for instance, confers improved taste, texture, aroma, nutritive value and appearance to food articles besides reducing degradation by bacteriological, enzymatic, oxidative and chemical reactions.

Cryogenic freezing systems, being more economical than conventional systems, can be very

handy for refrigerated transportation of marine food, fruits, vegetables and other perishable foods.

In medicine, human blood used for transfusion in hospitals cannot normally be preserved beyond three weeks. A new blood-freezing technique recently developed using liquid nitrogen can now be used for storing blood for months or even years. Cryogenics can also be used to store marrow cells in marrow banks of hospitals.

Cryosurgery has several advantages over normal surgery. It can be used to treat Parkinson's disease and other disorders of involuntary movement. Tumours can be frozen and removed with little loss of blood. Bloodless cryosurgery can also be used in tonsilectomies and in the removal of cataracts of the eyes.

Vast quantities of natural gases are burnt every year for want of economical methods for liquefying them in the country. The gases burnt at the refineries or oil fields can be liquefied by cryogenic methods and transported to the remote corners of the country for use by those who do not have the advantage of city gas lines. Liquid methane can reduce the cost of super-sonic flights by about one-third.

Work on applications of cryogenics is at present going on in nearly a dozen centres in India. They include the National Physical Laboratory, New Delhi, the Tata Institute of Fundamental Research, Bombay, the Indian Institute of Science, Bangalore, the Indian Association for Cultivation of Sciences, Jadavpur, the Physics Department of Delhi University, the Solid State Physics Laboratory, Delhi, and the Indian Institute of Technology, Kanpur.

Polymers

Polymer is a generic name given to a vast number of materials of high molecular weight. These materials exist in countless forms of numbers because of a very large number and types of atoms present in their molecules. Polymers can have different chemical structures, physical properties, mechanical behaviour, thermal characteristics etc., and can be classified in different ways, as now discussed.

Natural and Synthetic Polymers Depending on their origin, polymers can be grouped as natural or synthetic. Those isolated from natural materials are called natural polymers. Typical examples are cotton, silk, wool and rubber. Cellophane, cellulose rayon, leather and so on are, in fact, chemical modifications of natural

polymers. Polymers synthesised from low molecular weight components are called synthetic polymers. Typical examples are, polyethylene, PVC, nylon and terylene.

Organic and Inorganic Polymers A polymer whose backbone chain is essentially made of carbon atoms is termed an organic polymer. The atoms attached to the side valencies of the backbone carbone atoms are, however, usually those of hydrogen, oxygen, nitrogen etc. The majority of synthetic polymers are organic and they are very extensively studied. In fact, the number and variety of organic polymers are so large that when we refer to 'polymers', we normally mean organic polymers. The molecules of inorganic polymers, on the other

hand, generally contain no carbon atom in their chain backbone. Glass and silicone rubber are examples of inorganic polymers.

Thermoplastic and Thermosetting Polymers Some polymers soften on heating and can be converted into any shape that they retain on cooling. The process of heating, reshaping and retaining the same on cooling can be repeated several times. Such polymers, which soften on heating and stiffen on cooling, are termed 'thermoplastics'. Polyethylene, PVC, nylon and sealing wax are examples of thermoplastic polymers. Some polymers, on the other hand, undergo some chemical change on heating and convert themselves into an infusible mass. They are like the yolk of the egg, which on heating sets into a mass, and, once set, cannot be reshaped. Such polymers, which become an infusible and insoluble mass on heating, are called 'thermosetting' polymers.

Plastics, Elastomers, Fibres and Liquid Resins Depending on its ultimate form and use, a polymer can be classified as plastic, elastomer, fibre or liquid resin. When, for instance, a polymer is shaped into hard and tough utility articles by the application of heat and pressure, it is used as a 'plastic'. Typical examples are polyethylene, polystyrene, PVC and polymethyl methacrylate. When vulcanized into rubbery products exhibiting good strength and elongation, polymers are used as 'elastomers'. Typical examples are natural rubber, synthetic rubber and silicone rubber. If drawn into long filament-like materials, polymers are said to have been converted into 'fibres'. Typical examples are nylon and terylene. Polymers used as adhesives, potting compounds, sealants etc. in a liquid form are described as liquid resins. Commercially available epoxy adhesives and polysulphide sealants are typical examples.

Most of the synthetic polymers are of relatively recent origin. In fact, they appeared later than the radio and the airplane did, but look at the impact they have made on our life. Whether we are looking for a fancy decoration article, textiles, building materials or packing materials, the polymers have brought to the fore a scintillating range of irresistibly attractive choices. Look at the spectrum of plastic articles: buckets, pipes, wire insulation, floor coverings, synthetic fibres, bearings, gears, machine components, structural panels, packaging units, tires, hose, belts, foam, gloves, composite fibres involving polymer matrices plus fibre type of reinforcement etc. They have become so much a part of our society that it appears almost unthinkable that we could ever do without them. You name a desirable property – high strength, light weight, good flexibility, special

electrical properties, resistance to chemicals, amenability for quick and mass production and for fabrication into complex shapes in a wide variety of colours – some polymers will almost always meet your requirement. Polymers can be converted into strong solid articles, flexible rubber-like masses, soft and resilient foams, smooth and fine fibres, clean and clear glass-like sheets, swollen, jelly-like food materials and so on. They can be used to bond objects, seal joints, fill cavities, bear loads in fact, anything from clothing the naked to powering a space vehicle to even replacing a human organ! This should explain why this age could pass as the 'polymer' age.

We have seen that polymer is made up of many small molecules which have combined to form a single long or large molecule. The individual small molecules from which the polymer is formed are known as monomers (meaning, single part) and the process by which the monomer molecules are linked to form a big polymer molecule is called 'polymerisation'. When molecules just add on to form the polymer, the process is called 'addition' polymerization. The monomers species in this case retains its structural identity when it gets converted into a polymer. For example, the molecules of ethylene monomer can add on to form polyethylene, in which case the structural identity of ethylene is retained.

When, however, molecules do not just add on but also undergo some reaction in forming the polymer, the process is called 'condensation' polymerisation. Here, the two molecules (of the same or different monomers), condense to form a polymer. The condensation takes place between two reactive functional groups, like the carboxyl group (of an acid) and the hydroxyl group (of an alcohol), to form polyester. In both 'addition' and 'condensation' polymerizations, the polymer molecule formed contains a structural identity, repeating itself several times. These repeating entities are called the repeat units or the monomeric units of the polymer molecule. The size of the polymer molecule is decided by the number of repeat units present in it. This number denotes the degree of polymerisation.

Polymers are increasingly being used because of their unique properties as well as light weight which make them more suitable in many applications than metallic or ceramic materials. The choice of a particular polymer may be made largely because of characteristics such as good electrical insulation properties, low thermal conductivity or good chemical resistance. Another favourable factor for polymers is the ease with which they can be converted to products compared to metals or ceramics.

The World of Sound

Radio Telescopes have opened a new world to the astronomer – the world of sound, not of sight. The two worlds are fantastically different. The Milky Way, for example, is a river of light to the eyes but it is a hissing mass to the ears.

Radio Telescopes, in fact, help us to listen in to stars or galaxies that lie far beyond the ken of the world's largest optical telescopes. They also enable us to study astral phenomena which are within the range of our optical telescopes but which are not visible owing to the haze of cosmic dust. Thus it is that we have managed to collect what little we know about the galactic centre of the Milky Way.

Sound is produced by the vibrations of an object or mechanism and transmitted in the form of waves – alternating increase and decrease in pressures. It radiates outward through a material medium of molecules, more or less like the ripples spreading out on water after some heavy object has been thrown into it.

Two properties of sound are important, namely the *pitch* or *frequency* and intensity or loudness. The pitch or frequency refers to the rate of vibration of the sound and is measured in Hertz (Hz) units. The frequency of sound is determined by the number of times the vibrating waves undulate per second. The slower the cycle the lower the pitch. The pitch becomes higher as the cycles increase in number or which is the same thing, as frequencies increase.

The intensity or loudness is measured in decibels. A decibel (db) (one-tenth of a *bel*) is

a physical unit based on the weakest sound that can be detected by the human ear. It is named after Alexander Graham Bell, the inventor of the telephone. The decibel scale is logarithmic, that is, an increase of 10 db means 10 times as much, an increase of 20 db means 100 times and 30 db 1000 times etc. A light whisper may be about 10 db, a quiet conversation around 20 db, and normal talk 30 db. In comparison the electrically amplified beat music in a disco is a billion times louder than the sound of a whisper at 10 db. (see Box – *Noise Scale*).

The human ear cannot generally hear sounds of frequencies higher than 20,000 vibrations per second or in modern International Units 20,000 Hz. Sounds of frequencies higher than 20,000 Hz which are inaudible are called *ultra-sonic*. Bats produce very high pitch sound when they fly but they are at ultra-sonic frequencies from 20,000 to 100,000 Hz. So we cannot hear them. Ultra-sonic waves are an important tool of research in physics. There are also many applied uses for ultra-sonic waves, like submarine echo sounding, detection of flaws in casting, drilling glasses and ceramics, emulsification etc.

The speed of sound varies according to the nature of the carrier media. When we speak of the speed of sound, we ordinarily mean the speed at which sound travels in air at sea level. This is around 331 metres per second. In water, sound travels about 15 times faster than in air. In iron and steel it is even faster, about 3 times faster than the speed in water. Speeds of sound through some selected media are in-

Noise Scale

1. Breathing	10 db	14. Heavy truck traffic	90-100 db
2. Wind in the trees	20 db	15. Motor Cycle	105 db
3. Quiet Conversation	20-30 db	16. Pneumatic drill	110 db
4. Ticking Clock	30 db	17. Thunder storm	110 db
5. House in a quiet street	35 db	18. Beat Music	120 db
6. Radio Music	50-60 db	(electrically amplified)	90-120 db
7. Loud conversation	60 db	19. Aircraft noise	
8. Office noise	60 db	20. Jet takeoff	120 db
9. Children playing	60-80 db	(at 100 m distance)	
10. Lawn mower	60-80 db	21. Jet engine	140 db
11. Vacuum cleaner	80 db	(at 25 m distance)	
12. Traffic Noise	60-90 db	22. Space Vehicle launch	140-170 db
13. Sports car	80-95 db	(from a short distance)	

licated below: *ice-cold water* – 1505 m per second, *brick* – 3542 m, *granite* – 395 m, *hardwood* – 3847 m and *glass* – 5000 m to 6000 m per second.

Supersonic speed is speed greater than that of sound in air at sea level, that is to say, around 1216 km per hour. Supersonic speed is measured in *Mach*. This unit was worked out by the Czech-born German physicist *Ernst Mach* and therefore named after him. Mach is the ratio of the speed of flight to the speed of sound, under the same conditions of pressure and density. When a plane moves at the speed of sound, it is Mach 1. When a plane moves at twice the speed of sound (supersonic), it is Mach 2. When it is less than the speed of sound it is *sub-sonic* and therefore less than Mach 1. At half the speed of sound it is Mach 0.5.

Sound barrier is the point at which the speed of flight equals the speed of sound. When a plane flies faster than sound, it is said to have crossed the sound barrier. When the sound barrier is passed, the speed of the aircraft produces shock waves in the atmosphere, somewhat like the bow waves produced by fast-moving ships. The shock waves in the atmosphere produce booms like thunder claps. These are called *sonic booms*. The sonic booms jar on the ears of the resident population in the areas over which the plane flies but they do not trouble the passengers or the crew because the plane goes faster than the shock waves.

The human ear can safely respond to pressures up to 120 db. Any intensity higher than this is harmful and can damage the ear. This will be clear, if we examine the functioning of the ear.

The ear consists of three parts, the *outer ear*, the *middle ear* and the *inner ear*. The outer ear (*auricle*) collects the sound stimuli. These are carried through a canal to the middle ear. The canal is not straight and is the widest where it meets the outer wall of the middle ear, the ear drum. The sweat glands of the canal are modified to secrete a kind of wax – the ear wax. The middle ear is a cavity in the temporal bone which is a part of the skull. The *tympanic membrane* or the ear drum receives the sound vibrations from the outer ear.

Three minute pieces of bone bridge the cavity, the *hammer*, the *anvil* and the *stirrup* (so called from their shapes). These transmit the vibrations received by the middle ear to the inner ear. The inner ear is a small but elaborate structure which houses two distinct organs – one for hearing and the other for balance. The organ for hearing, called the *cochlea* is a snail-shaped container which transmits sound vi-

brations as nerve impulses to the brain. It is the brain that initiates the entire system of varied bodily responses to sound.

Thus, the brain activates the pituitary gland which in turn causes the thyroid and adrenal glands to excrete hormones. It stimulates the sympathetic nervous system which influences the heart, the stomach, the pupil, blood vessels and motor nerves which control muscle reactions. These and other reactions determine our bodily responses to sound.

A common misconception is that the ear gets accustomed to excessive noise if it is heard *continually*. Actually what happens is that the ear progressively loses its sensitivity and ability to transmit sound vibrations to the brain resulting in various degrees of deafness. Such disabilities become markedly noticeable in old age.

Sound is either music or noise – so goes an old saying. What is implied by this distinction is that whatever is pleasant to the ear is music while all that is unpleasant is noise. Such phrases as 'grating on the ears' or 'jarring on the nerves' express the discomfort we feel on hearing unpleasant sounds. It is such unpleasant impact of sound that are collectively described as *noise pollution*.

All cities and towns labour under noise pollution in varying degrees. The worst offenders are the big cities, whose noisy traffic itself is a potent menace to hearing. A study recently conducted in West Germany showed that 2 million people (out of nearly 63 million) live in places where the noise level is high. This is a small percentage, as percentages go, but indicates only those who are exposed to the greatest danger.

It does not mean that others are unaffected by noise pollution. Even noises at much lower levels can be harmful, especially during sleep and recuperation. Anything that disturbs rest or sleep is detrimental to health in the long run. Barking dogs and fighting cats can interfere with sleep whether in the town or in the country.

During work hours noise is definitely a deterrent to concentration. From 50 db onwards noise can interfere with normal voice communication. At 70 db even normal conversation becomes impossible. However, some people have become so accustomed to noise that they cannot concentrate on their work in the absence of familiar sounds like the radio. Maybe, the people do turn out better work in a noisy environment but they are heaping up trouble for the future.

The constant exposure to noise will steadily deteriorate the delicate parts of the middle ear which would fail more and more in transmitting sound impulses to the inner ear, ultimately

ulting in inefficient bodily responses to sound.

A study jointly conducted by the Indian Council of Medical Research and the Department of Science and Technology during the period from 1977 to 1982 showed that more than 10% of the urban population and about 7%

of the rural population in India suffer from mild to severe hearing impairment. The fact that a greater percentage of the urban population – almost one and a half times its rural counterpart – suffer from defective hearing clearly shows the dangers posed by higher noise pollution levels.

Time Standards

The earliest instruments for measuring time included many devices like the Sun dial and the water clock which were used in Egypt. These instruments were crude. In the 3rd century B.C., Ctesibius, a Greek engineer of Alexandria, re-designed the ancient Egyptian water clock and made it popular.

The improved water clock was the best of the ancient timepieces. During the Middle Ages mechanical clocks run by falling weights came into vogue. These were more convenient than the water clocks but no more accurate. Both erred by as much as half an hour per day.

In 1884 the second – the lowest unit of time – was defined as $1/86,400$ of the time that the Earth took to complete one rotation on its own axis or $1/86,400$ of a day of 24 hours. This, of course, meant that the 24-hour day was made up of 86,400 seconds.

But the Earth wobbles as it rotates. This wobbling leads to fluctuations in the time of rotation. It was therefore decided in 1960 to abandon the period of rotation as the primary

unit (that is, a day of 24 hours), and to adopt the period of revolution (of the Earth round the Sun) as the basis of calculations. The second was thus re-defined as $1/31,556,925.9747$ of the time that the Earth took to complete one revolution round the Sun. A year of 365 days and odd, thus consisted of about 31.5 million seconds.

In 1967 the *General Conference on Weights & Measures* recognised the atomic second as determined by the *cesium* (caesium) *atom clock* as the unit of time under the International System of Units (SI). The atomic second is defined as the time taken by the cesium electron to complete 9,192,631,770 spins.

The definition is not as accurate as it looks because the cesium electron may sometimes take more spins and sometimes less spins than the defined norm. The deviation, however, is only a few spins either way, that is, a few spins more or less than 9192 million spins. This is insignificant.

The atomic clock has two specific advan-

Greenwich Mean Time

The following zones are fast on Greenwich Time by the number of hours indicated in brackets:

Fiji, New Zealand etc. (12 hrs.). New Caledonia, New Hebrides etc. (11). Queensland, Tasmania etc. (10). Japan, Korea etc. (9). China, Hongkong, Philippines etc. (8). Singapore (7 $\frac{1}{2}$). Java, Thailand etc. (7). Burma, Cocos Keeling Islands (6 $\frac{1}{2}$). Bangladesh (6). India, Sri Lanka, Andaman and Nicobar Islands (5 $\frac{1}{2}$). Pakistan (5). Mauritius, Seychelles etc. (4). Iran (3 $\frac{1}{2}$). Iraq, Ethiopia etc. (3). Turkey, Greece, Bulgaria etc. (2). Sweden, Norway, Denmark etc. (1).

The following areas are slow on Greenwich Time by the number of hours indicated.

Iceland, Madeira etc. (1). Azores, Cape Verde

etc. (2). Greenland (excluding Scoresby Sound and Thule) and Eastern Brazil (3). Newfoundland, Labrador, Dutch Guiana and Uruguay (3 $\frac{1}{2}$). Canada (east of 68°W), Greenland (Thule area), Puerto Rico etc. (4). Canada (from 68°W. to 85°). Jamaica, Bahama, Bahama Is., Cuba, Haiti, Peru, Panama etc. (5). Canada (from 85°W to 102°W), Costa Rica, Salvador, Honduras, Guatemala, Nicaragua, Central parts of USA and parts of Mexico (6). Canada (from 102°W. to 120°W.), mountain States of USA and parts of Mexico (7). Canada (West of 120°W.), Alaska (south east), Western States of USA and parts of Mexico (8). Alaska (north of Cross Sound), Yukon, Christmas Is. (9). Alaska (from 141°W.), Hawaii etc. (10). Aleutian Is., Alaska (west coast), Samoa, Midway Is. (11).

tages. It is not affected by the vagaries of the atmosphere nor by the fluctuations in the rotation of the Earth. The latter has become important in recent years. For, it has been observed from 1970 onwards that the Earth is slowing down in rotation by nearly a second every year.

Since this error has been noticed, clocks all over the world are being corrected at the beginning of every year to conform to the atomic time. The atomic clock developed by the British National Physical Laboratory has achieved a very high degree of accuracy. It is accurate to one second in 300 years.

Since January 1972, a new standard of time called the *Co-ordinated Universal Time* (UTC) has also been maintained in Paris, the headquarters of the General Conference on Weights & Measures. This is not based on any single atomic clock but on the average of atomic clock readings from 18 timing centres around the world.

The UTC does not gain or lose more than one hundred millionth of a second per day. This has whittled down the infinitesimal error of the atomic clocks to the vanishing point. It is expected that the UTC will remain absolutely correct for a quarter million years.

The system of *Standard Time* was introduced to correlate the time systems of various countries on an international basis. For this purpose

the Earth was divided into 24 longitudinal zones, each zone being 15 degrees of an arc or one hour apart in time. The zero zone is centred at Greenwich (London) which gives the GMT or the Greenwich Mean Time. The 12th zone is divided by the 180th meridian, the International Date-line.

The zones to the east of this line are numbered from 1 to 12 with the prefix *minus* indicating the number of hours to be subtracted to obtain the Greenwich Time. The zones to the west are similarly numbered with the prefix *plus* which shows the number of hours that must be added to get the Greenwich Time.

The Date-line is a zigzag line that coincides more or less with the 180th meridian. When the Date-line is crossed to the west the date must be advanced by one day. When the Line is crossed to the east, the date must be set back by one day. The Line is deflected between north latitudes 48° and 75° with the result that all Asia lies to the west of the line.

The twenty-four-hour time is now being increasingly used especially by railways and other transport organizations. Its great advantage is that it dispenses with the suffixes *a.m.* and *p.m.*. In the 24-hour system, day begins at midnight, the zero hour, and the hours that follow are consecutively numbered from 0 to 23.

Numerals

The numerals, now in everyday use, are called Arabic numerals, because it was from the Arabs that these numerals spread to Europe. Actually, they are Indian in origin and should rightly be called Indian numerals.

The concept of zero and the digital system (including decimals) are India's contributions to the science of numerals. The Arabs adopted the Indian system. The Europeans got it from the Arabs (See Landmarks of Science).

Among the authors, who were instrumental in transmitting Indian mathematical knowledge from Arab sources to Europe, the most famous was Leonardo of Pisa (A.D. 1202). Other important authors were John Seville (1135) Adelard of Bath (1142), Robert of Chester (1142) Villedien (1240) and Sacrabosa (1242).

Roman Numerals are those used by the ancient Romans. They are letters converted into numbers I = 1, V = 5, X = 10, etc. They do not

Arabic numerals and their corresponding Roman numbers are given below:

Arabic & Roman

1	I	6	VI	11	XI	16	XVI	30	XXX	200	CC
2	II	7	VII	12	XII	17	XVII	40	XL	400	CD
3	III	8	VIII	13	XIII	18	XVIII	50	L	500	D
4	IV	9	IX	14	XIV	19	XIX	90	XC	900	CM
5	V	10	X	15	XV	20	XX	100	C	1000	M

Multiples

V̄ 5000; X̄ 10,000; L̄ 50,000; C̄ 100,000; D̄ 500,000; M̄ 1,000,000.

How the digital system of Arab numerals. The general rules of Roman numerals are the following: (1) Repeating a letter repeats its value: XX = 20 + 10 = 20. (2) A letter placed after one of greater value adds thereto: VI = 5+1 = 6. (3) A letter placed before another of greater value subtracts therefrom: IV = 5-1 = 4. (4) A dash over

a numeral multiplies its value by thousand: X = 10 Y 1000 = 10,000.

Some high Arabic numerals cause a lot of confusion, when used as words. The classic instance is *billion** which in U.S. is equal to a *thousand million* and in Britain to a *million-million*.

Higher Numerals

Number	US & France	UK & Other European Countries	India
& 5 zeros	One Hundred Thousand	One Hundred Thousand	One Lakh
" 6	Million	Million	Ten Lakh
" 7	Ten Million	Ten Million	One Crore
" 8	Hundred Million	Hundred Million	Ten Crore
" 9	Billion	Milliard (Thousand Million)	Hundred Crore
" 12	Trillion	Billion	....
" 15	Quadrillion	Thousand Billion	....
" 18	Quintillion	Trillion	....
" 21	Sextillion	Thousand Trillion	....
" 24	Septillion	Quadrillion	....
" 27	Octillion	Thousand Quadrillion	....
" 30	Nonillion	Quintillion	....
" 33	Decillion	Thousand Quintillion	....

The word 'billion' wherever it is used in this book means a 'thousand million' (American sense) unless otherwise indicated.

International Units

During the first half of the present century, there were two widely used systems of Weights and Measures — the Imperial System and the Metric System. The Imperial System prevailed in the British Empire.

The English-speaking countries including the United States also adopted the Imperial System. The Metric System was followed in France and other European countries and their colonies and dependencies.

The *Imperial System* derived from the old Anglo-Saxon measurements. They were rough and ready units based on standards that were readily available everywhere — the human hand, for example. In their very nature, they could never be precise and, worse, they changed from person to person and from place to place.

The *inch* was the 'knuckle of the thumb.' A *yard* was the distance from the tip of *King Edgar's* nose to the tip of the middle finger of his outstretched hand. An *acre* was the amount of land that could be ploughed in a day by a yoke of oxen. The *mile* came from the Roman legionaries. Their *milli* was 1000 paces or about 1618 yards. Paces being vastly different, the mile was eventually standardised at 1760 yards.

It was from such a conglomeration of odd units that the Imperial System of weights and measures was ultimately evolved. Although these basic units are now precisely defined, their conversion into larger or smaller units is an arithmetical torment. The mile, for example, is 12x3x220x8 inches and the short ton is 16x16x14x2x4x20 drams.

The *Metric System*, unlike the Imperial System, was deliberately thought out. This system was adopted by France in 1790. As adopted in France, the new unit of length was the *metre* which was equal to one-ten millionth of a quadrant of the Earth's meridian. The unit of weight or mass was the *kilogram*, which was defined as the mass of a cubic decimetre (0.01 cubic metre) of water. The volume represented by a cubic decimetre of water was to be called a *litre*.

In 1870 France called together a convention to evolve a unified metric system. In 1875 the Treaty of the Metre was signed in Paris. The treaty established an *International Bureau of Weights and Measures*, and a *General Conference on Weights and Measures*, which would meet periodically to adopt new definitions as the need arose.

In 1889 the metre and the kilogram were re-defined in terms of a bar of platinum-iridium alloy which was stored in a vault in Paris.

Today the metric system has been adopted by almost all nations.†

In 1954 the General Conference on Weights & Measures adopted one form of the Metric system as an internationally suitable system. In 1960 the system was named *System International de Unites* or the International System of Units, shortened to SI.

The system rests on 4 independent base units for *length, mass, time and temperature*. The units for length and mass are the *metre* and the *kilogram* respectively. The unit of time is the *second*, which has been defined in terms of the atomic clock. The unit of temperature is the degree Celsius (centigrade) or *Kelvin* as opposed to Fahrenheit. The conference has also accepted certain well-established units like the *minute* and the *hour* (units of time), the *degree*, the *minute* and the *second* as units of angular measurement and the *nautical mile* and *knot*.

The spectacular development of science and technology compelled the conference to define precisely, generally known units of measurement like length, mass or time. In addition, the conference had to adopt and define new units of measurement. The labours of the Conference in this regard led to the evolution of a complicated and highly technical international system. The definitions are stated in strict scientific jargon which the layman can hardly follow. A brief outline of the system is given below.

The S.I. Units are divided into three classes.

International Units

Base unit	Symbol	Year of Adoption
METRE-Unit of length	m	1960
KILOGRAM-unit of mass	kg	1960
SECOND-unit of time	s	1967
AMPERE-Unit of electric current	A	1948
KELVIN-Unit of thermodynamic temperature	K	1967
CANDELA-Unit of luminous intensity	cd	1967
MOLE-Amount of substance*	mol	1971

*One mole (mol) is an amount of substance in grams equal to its molecular weight.

† In 1971 the US decided to change over to the Metric System in ten years at the end of which the US will be predominantly but not exclusively on the Metric System. The Metric Conversion Act of 1975 legalised the change-over and set up the US Metric Board to supervise it.

Supplementary Units

RADIAN-plane angle	rad	1960
STERADIAN-Solid angle	sr	1960

Simple Expression in Terms of Base Units

Quantity	Name	Symbol
'Area	square metre	m ²
Volume	cubic metre	m ³
Speed	metre per second	m/s
Density	Kilogram per cubic metre	kg/m ³
Specific Volume	cubic metre per kilogram	m ³ /kg
Luminance	candela per square metre	cd/m ²

1. Base units which form the foundations of the system.

2. Derived units which are generally formed by a combination of Base units.

3. Supplementary units which are used in angular measurement.

The special feature of the system is its coherence. A coherent set of units can be defined as one that arises, when a quotient or product of any two quantities leads to the unit of the resultant quantity. In other words, all units of the system hold together and are explicable in terms of other units.

The base units are defined as under:

Metre. The General Conference on Weights and Measures, an international organization based in France, decided to give a new definition to the metre. Now "the metre is the length of the path travelled by light in vacuum during a time interval of 1/299,792,458 of a second".

Kilogram. It is the mass of the international prototype of the kilogram, which is in the custody of the "Bureau International des Poids et Mesures (BIPM) Sevres", near PARIS. Among the base units, the unit of mass is the only one whose name, for historical reasons, contains a prefix (Kilo).

Derived Units with Special Names

Quantity	Name	Symbol
Frequency	hertz	Hz
Force	newton	N
Pressure	pascal	Pa
Quantity of electricity	coulomb	C
Electric tension	volt	V
Electric resistance	ohm	Ω
Luminous flux	lumen	lm
Illuminance	lux	lx

Second. It is the duration of 9,129,631,770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the Caesium-133 atom.

Ampere. It is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible cross section, and placed at a distance of 1 metre apart in vacuum, would produce between these conductors a force equal to 2×10^{-7} newton/metre of length.

Kelvin. It is the fraction 1/273.16 of the thermodynamic temperature of water's triple point.

Candela. It is the luminous intensity, in the perpendicular direction, of a surface of 1/600,000 square metre of a black body at the temperature of freezing platinum under a pressure of 101,325 newtons per square metre.

Mole. It is the amount of substance of a system which contains as many elementary entities as there are atoms in 0.021 kilogram of carbon 12.

Multiples

Tera(T) = 10^{12}	(1 followed by 12 zeros)
Giga(G) = 10^9	" 9 "
Mega(M) = 10^6	" 6 "
Kilo(k) = 10^3	" 3 "
Hecto(h) = 10^2	" 2 "
Deca(da) = 10^1	" 1 "

Fractions

Deci(d) = 10^{-1}	(0.1)
Centi(c) = 10^{-2}	(0.01)
Milli(m) = 10^{-3}	(0.001)
Micro(μ) = 10^{-6}	(Decimal point, followed by 5 zeros and 1)
Nano(n) = 10^{-9}	(Decimal point, followed by 8 zeros and 1)
Pico(p) = 10^{-12}	(Decimal point, followed by 11 zeros and 1)
Femto(f) = 10^{-15}	(Decimal point, followed by 14 zeros and 1)
Atto(a) = 10^{-18}	(Decimal point, followed by 17 zeros and 1)

The supplementary units are 1. Radian (rad) Plane angle and 2. Steradian (sr) Solid Angle.

Radian. It is the plane angle which, having its vertex at the centre of a circle, cuts off a length on the circumference of the circle equal to the radius of the circle.

Steradian. It is the solid angle which, having its vertex at the centre of a sphere, cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of the sphere.

Multiples and Subdivisions. Multiples and subdivisions (fractions) are indicated by appropriate prefixes. Multiples upto 1000 are indicated by the following prefixes — deca (10), hecto (100), and kilo (1000). Fractions

SI Equivalent

Length		
1 angstrom	0.1	nanometre (nm)
1 chain	20.12	metre (m)
1 engineer's chain	30.48	do
1 fathom	1.829	do
1 foot	0.304 8†	do
1 furlong	0.201 2†	kilometre (km)
1 inch	25.4	millimetre (mm)
1 link	0.201 2†	metre (m)
1 mile	1.609	kilometre (km)
1 nautical mile international	1.852	do
1 nautical mile telegraph	1.855	do
1 nautical mile U.K.	1.853	do

Area		
1 acre	4047	sq metre
1 sq foot	929.0	sq centimetre
1 sq mile	2.599	sq kilometre
1 sq yard	0.836 1†	sq metre

Volume		
1 cubic foot	28.32	cubic decimetre
1 cubic inch	16.39	do centimetre
1 fluid ounce	28.41	do do
1 gallon, imperial	4.546	cubic decimetre
1 gallon US	3.785	do do
1 pint, imperial	0.586 3†	do do

Mass		
1 grain	64.80	milligram
1 hundred weight	50.80	kilogram
1 maund	37.32	do
1 ounce	28.35	gram
1 pound	0.453 6†	kilogram
1 quintal	100	do
1 seer	0.933 1†	do
1 tola	11.66	gram
1 ton	1.016	tonne
1 ton US	0.907 2†	do

Velocity		
1 foot per minute	0.005 08†	metre per second
1 foot per second	0.304 8†	metre per second
1 inch per second	25.4	millimetre per second
1 knot	0.514 4†	metre per second
	1.852	km per hour
1 knot UK	0.514 7†	metre per second
	1.853	km per hour
1 mile per hour	0.447 0†	metre per second
	1.609	km per hour

Fuel Consumption		
1 gallon per mile	2.825	litre per km
1 US gallon per mile	2.352	do "
1 mile per gallon	0.354 0†	km per litre
1 mile per US gallon	0.425 1†	km per litre

† Among the rules of notation for S. I. one rule says that where a numerical value contains more than three digits, it is advisable to separate the digits into groups of three moving to the left or right of the decimal point. The separation is to be indicated by omitting a space and not by a comma as is usually done. The omission of space in item number 5 in the above table (0.304 8 instead of 0.304, 8) and other similar omissions are to be treated as commas and read accordingly.

Table of Metric Weights and Measures

Linear Measure					
10	Millimetres (mm)	=	1	centimetre	(cm)
10	centimetres	=	1	decimetre	(dm)
10	decimetres	=	1	metre	(m)
10	metres	=	1	decametre	(da m)
10	decametres	=	1	hectometre	(hm)
10	hectometres	=	1	kilometre	(km)
Area					
100	square millimetres (mm ²)	=	1	square centimetre	(cm ²)
10,000	square centimetres	=	1	square metre	(m ²)
100	square metres (m ²)	=	1	are	(a)
100	ares	=	1	hectare	(ha)
100	hectares	=	1	square kilometre	(sq km)
Volume Measure					
01	litre (l)	=		0.001 cubic metre	
10	millilitres (ml)	=	1	centilitre	(cl)
10	centilitres	=	1	decilitre	(dl)
10	decilitres	=	1	litre	(l)
10	litres	=	1	decalitre	(da l)
10	decalitres	=	1	hectolitre	(hl)
10	hectolitres	=	1	kilolitre	(kl)
Weight					
10	milligrams (mg)	=	1	centigram	(cg)
10	centigrams	=	1	decigram	(dg)
10	decigrams	=	1	gram	(g)
10	grams	=	1	decagram	(da g)
10	decagrams	=	1	hectogram	(hg)
10	hectograms	=	1	kilogram	(kg)
1000	kilograms	=	1	metric tonne	(t)
Cubic Measure					
1000	cubic millimetres (mm ³)	=	1	cubic centimetre	(cm ³)
1000	cubic centimetres	=	1	cubic decimetre	(dm ³)
1000	cubic decimetres	=	1	cubic metre	(m ³)

Double Conversion Tables for Weights and Measures

Note: The central figures (1 to 100) represent either of the two columns beside them, as the case may be.

Example: 1 centimetre=0.394 inches and 1 inch=2.540 centimetres.
 1 metre=1.094 yards and 1 yard=0.914 metres. 1 kilometre=0.621 miles and
 1 mile=1.609 kilometres.

Centimetres		Inches	Metres		Yards	Kilometres		Miles
2.540	1	0.394	0.914	1	1.094	1.609	1	0.621
5.000	2	0.787	1.829	2	2.187	3.219	2	1.243
7.620	3	1.181	2.743	3	3.281	4.828	3	1.864
10.160	4	1.575	3.658	4	4.374	6.437	4	2.485
12.700	5	1.969	4.572	5	5.468	8.047	5	3.107
15.240	6	2.362	5.486	6	6.562	9.656	6	3.728
17.780	7	2.756	6.401	7	7.655	11.266	7	4.350
20.320	8	3.150	7.315	8	8.749	12.875	8	4.971
22.860	9	3.543	8.230	9	9.843	14.484	9	5.592
25.400	10	3.937	9.144	10	10.936	16.094	10	6.214
127.000	50	19.685	45.720	50	54.681	80.468	50	31.068
254.000	100	39.370	91.439	100	109.361	160.936	100	62.136

Hectares		Acres	Square Kilometres		Square Miles	Kilograms		Av. Pound
0.404	1	2.471	2.590	1	0.386	0.454	1	2.205
0.809	2	4.942	5.180	2	0.772	0.907	2	4.409
1.214	3	7.413	7.770	3	1.158	1.361	3	6.614
1.619	4	9.884	10.360	4	1.544	1.814	4	8.818
2.023	5	12.355	12.950	5	1.931	2.268	5	11.023
2.428	6	14.826	15.540	6	2.317	2.722	6	13.228
2.833	7	17.298	18.130	7	2.703	3.175	7	15.432
3.237	8	19.769	20.720	8	3.089	3.629	8	17.637
3.642	9	22.240	23.310	9	3.475	4.082	9	19.842
4.047	10	24.711	25.900	10	3.861	4.536	10	22.046
20.234	50	123.554	129.498	50	19.306	22.680	50	110.231
40.468	100	247.108	258.995	100	38.611	45.359	100	220.462

Metric Tons		Long Tons	Metric Tons		Short Tons	Litres		Pints
1.016	1	0.984	0.907	1	1.102	0.568	1	1.760
2.032	2	1.968	1.814	2	2.205	1.136	2	3.520
3.048	3	2.953	2.722	3	3.307	1.705	3	5.279
4.064	4	3.937	3.629	4	4.409	2.273	4	7.039
5.080	5	4.921	4.536	5	5.512	2.841	5	8.799
6.096	6	5.905	5.443	6	6.614	3.409	6	10.559
7.112	7	6.889	6.350	7	7.716	3.978	7	12.319
8.128	8	7.874	7.257	8	8.818	4.546	8	14.078
9.144	9	8.858	8.165	9	9.921	5.114	9	15.838
10.161	10	9.842	9.072	10	11.023	5.682	10	17.598
50.803	50	49.211	45.359	50	55.116	28.412	50	87.990
110.605	100	98.421	90.718	100	110.231	56.824	100	175.980

Long Ton (Br.) = 2240 lb

Short Ton (US) = 2000 lb

Tonne (metric ton) = 1000 kg

Quintal = 100 kg

Litres		Gallons		Litres		Gallons
4.546	1	0.220		31.822	7	1.540
9.092	2	0.440		36.368	8	1.760
13.638	3	0.660		40.914	9	1.980
18.184	4	0.880		45.460	10	2.200
22.730	5	1.100		227.298	50	10.999
27.276	6	1.320		454.596	100	21.997

Simple Conversion Table

Indian Units

Tolas to grams										
Tolas	1	2	3	4	5	6	7	8	9	10
Grams	11.66	23.33	34.99	46.66	58.32	69.98	81.65	93.31	104.97	116.64
Seers to kilograms										
Seers	1	2	3	4	5	6	7	8	9	10
Kilograms	0.93	1.87	2.80	3.73	4.67	5.60	6.53	7.46	8.40	9.33
Maunds to Quintals										
Maunds	1	2	3	4	5	6	7	8	9	10
Quintals	0.37	0.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.73

The World of Medicine

The world is endowed with many systems of Medicine: Allopathy, Homeopathy, Ayurveda, the Arabic, the Egyptian, the Graeco-Roman,.... etc. While the Western system has entrenched itself with multifarious growth, there is a growing awareness of the distinctive efficacy of Eastern systems like the Ayurveda.

All ancient civilizations—Egyptian, Babylonian, Indian and Chinese—developed their own systems of medicine. Egyptian seems to have been the first and the best in the field. It had a fully developed medical system by the third millennium B.C.

We know very little of the Babylonian system and much less, almost nothing, of the Indus Valley system. The Indian system, as we know it, starts with the Rigveda (2000 B.C.). The earliest known medical treatise in China appeared around 450 B.C.,

The Egyptian system, like all other ancient systems, laboured under a heavy load of superstition and magic. Yet it developed many cures that have stood the test of time. Pain-killing drugs and sedatives were well-known to the Egyptians. Queen Nefretiti is portrayed in a bas-relief as administering a pain-killing drug to her ailing husband, the Pharaoh. *Henbane*, a herb, which is known to us as a sedative source was first used by the Egyptians. *Onion* as a cure for scurvy and also as a cure for intestinal disorders is an old Egyptian prescription.

The Chinese system must have been many centuries old when the first great medical treatise appeared in China around 450 B.C. This treatise, unlike the Indian *Rigveda* and the later *Atharvaveda*, is an elaborate treatise on medicine, comparable to the *Susruta Samhita* or the *Charaka Samhita* of India. It included, among others, detailed descriptions of *acupuncture* which has received international publicity during recent times. Between 600 and 900 A.D., the Chinese system of medicine, known as Han-Yi, had spread to Korea and Japan and much of South East Asia.

Ancient China has developed many cures, some of which have come down to modern times. *Ephedra*, a herb which soothes coughs, was known to the Chinese 4000 years ago. *Rhubarb* as a laxative was first used in China. *Pumpkin* seeds, another Chinese contribution, is a well-known wormridder. It is now found to be effective against snail fever also.

The Graeco-Roman system was almost entirely derived from the Egyptian system. Most of

its cures are of Egyptian origin. To the Greeks, we owe the first revolutionary change in medical practice—the liberation of medicine from superstition and magic. *Hippocrates*, a Greek physician known as the Father of Medicine in the West, condemned the use of charms and chants in medicine. He laid down a code of conduct for medical practitioners. Scientific therapy started with Hippocrates.

The Arabs revolutionised the science of medicine by effecting a synthesis of Indian medical system and the Graeco-Roman system. They passed on this knowledge to Europe. The influence of Arabic medicine on Europe was widespread and longstanding. *Qunun* (Canon) written by the Arab scholar *Avicenna* (11th cent. A.D.) became the primary text of medical studies in Europe and continued to be so as late as the 17th century.

Under the Mughal Emperors, Arab medicine came to India. It took root in India, under the name of *Unani*, mainly because there was so much in common between the old Indian system and the new Unani system. The term *Unani* is derived from the Sanskrit *Yavana* meaning Greek. The Unani system continues to this day in India.

The Indian System known as *Ayurveda* originated as far back as 2000 B.C. *Ayurveda* is a compound word in Sanskrit, meaning, literally, *the Science of Life*. Actually, it implies two connected ideas—the science of life and the art of living.

Ayurveda, unlike allopathy or homeopathy, does not swear by any particular principle of cure. Ayurvedic treatment covers all the principles of allopathy, homeopathy and naturopathy. Thus, says Pandit Shiv Sharma, President of the Central Council of Indian Medicine, "the homeopathic opium which cures constipation and the allopathic opium which causes it, both fall within the Ayurvedic therapeutic measures."

According to Ayurveda, "there are three basic constituent complexes in the physiological system called *doshas*. They are *Vayu* or *Vata*, *Pitta* and *Kapha* or *Sleshma*. These terms, though literally they mean *wind*, *bile* and *phlegm* respectively, embrace much more. Between them, they sustain the whole body metabolism.

Good health implies an ideal balance between the three doshic factors. No true *monodoshic* individual exists. It is the pre-dominance of any particular *dosha* which marks the con-

stitutional types of men. On this basis, humans are divided into three psychosomatic types, namely the *vataprakriti*, the *pitta-prakriti* and the *kaphaprakriti*.

The Ayurvedic physician has to evaluate the *doshic* picture of the patient and find out what type of *tridosha* predominates and set right the imbalance by prescribing drugs, diets and practices.

The western system of medicine was later named *Allopathy* by *Hahnemann* to distinguish it from his own system Homeopathy. Allo, from the Greek word *Alos*, means other or another, and implies the treatment of diseases by other drugs, that is, drugs having effects opposed to the symptoms. Homeo, from Greek word *Homos*, means treatment by drugs having the same effects as the symptoms of disease. In other words, homeopathy (literally, similar suffering) is based on the principle 'like cures like' while allopathy is based on the principle 'opposites cure opposites.'

Modern Medicine Most diseases caused by infectious organisms can be controlled by drugs, many can be prevented by vaccination and some dreaded diseases like smallpox have been eradicated. But newly evolving diseases like *AIDS* (Acquired Immuno Deficiency Syndrome) are creating fresh challenges to the field of medicine. Ever since the first case of *AIDS* was reported in USA in 1981, people in more than 175 countries have been affected by now.

WHO estimates show that about 22.2 million (1994) people are infected worldwide with 10 countries accounting for more than 80% of the burden. These include USA (0.04% of the population) Western Europe, Central Africa (e.g. Zaire - 3.5% of population), South America (particularly Brazil) and Canada. In India 179,000 confirmed cases of *AIDS* have already been detected, with maximum incidence in Maharashtra, Manipur, Delhi and Tamil Nadu. The WHO estimates that by 1996 there will be 2 to 3 million HIV infected people in India.

PIT extends life of AIDS patients

Trials of an experimental treatment for *AIDS* have found that it prolongs the lives of sufferers. The treatment, known as Passive-Immune Therapy (PIT), involves giving a monthly infusion of blood plasma taken from people infected with HIV, but still healthy, to those who have developed clinical symptoms of the disease.

It was first developed by Dr. Abraham Karpas, assistant research director of the haematology department at Cambridge University in eastern England. Dr. Karpas noted nine years ago that healthy HIV-infected individuals have high levels of antibodies in their blood which kill the virus in the test tube, while the blood of those suffering from full *AIDS* no longer have the antibodies.

Dr. Abraham Karpas' observation led him to suggest the idea of transferring these antibodies to *AIDS* patients and the treatment was given experimentally to 4 patients in Cambridge who were at an advanced stage of *AIDS* and eventually died. It is

believed that they lived longer as a result of the treatment but a proper trial was needed to demonstrate any improvement scientifically.

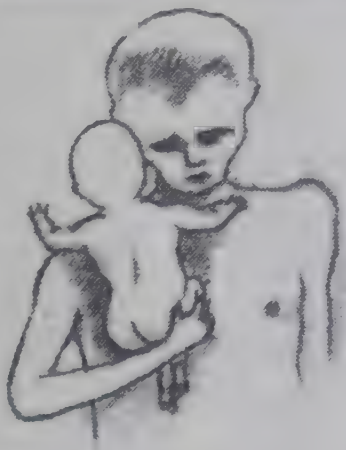
His belief has now been confirmed by a group of 21 *AIDS* patients in France and the United States, who were given transfusions of plasma containing HIV antibodies compared with 30 patients who were given treatment not containing the plasma.

The results show that there was only one death among the 21 treated patients, compared with 6 deaths in the placebo group. This was an unexpected bonus for the healthy HIV infected donors - their T-cell count, an indication of well-being, improved over the period.

Dr. Karpas said, "It looks as though treatment started at an early stage of the disease will delay the onset of *AIDS*, but we need a bigger

trial to confirm its effectiveness.

The treatment is completely non-toxic and appears to be better than any other form of treatment available."



AIDS is caused by the Human Immunodeficiency Virus (HIV)—a retrovirus, that attacks the immune system by causing a progressive loss of T helper lymphocytes (T4 cells) of white blood cells—mainly responsible for activating most types of immune responses. This results in a break in the resistance to infection and even relatively insignificant organisms can cause life-threatening infections in them.

After becoming infected with the virus it takes a mean period of 8-10 years for the disease to become manifest in the adult but this occurs sooner or later in virtually all. During the first phase of infection, fewer than one in a thousand T4 cells is infected; fewer than one in a thousand of these infected cells actually procreate at any particular time. Within 10 years of infection, however, the proportion of infected T4 cells begins to rise. Eventually, the virus's rate of replication exceeds the body's ability to replace damaged cells. Free virus spills over into the blood, and immune functions are lost.

Casual contact with patients and mosquito bite have never been shown to transmit the virus. Homosexuality and intravenous drug abusers form the groups at the highest risk in the world but transmission can occur through heterosexual contact also, especially if it involves multiple partners and this is the major mode of spread in India. Other means of transmission are through transfusion of blood products and from infected mothers to their infants.

A cure for AIDS is still in the distant horizon. Anti-viral drugs like Zidovudine may at best retard the progression of the disease. Development of a vaccine against the virus would be a major breakthrough but there are several hurdles ahead. This is made difficult by the fact that there are nine subtypes of HIV-1 virus and throughout the course of infection, the genetic makeup of the virus is constantly changing. HIV mutates much faster than other viruses. Mutations occur in the genes that dictate the kinds of proteins that form the virus's core in the regulatory genes that determine how rapidly the virus replicates. This in turn changes its biological properties. On one hand the changes can make the virus more lethal and on the other hand other genetic changes take place, making it evade the body's immune surveillance. New mutants may eventually emerge too fast for the immune system to respond.

At present more importance is given to prevention of the spread of the virus by adoption of various health practices.

A major advance in the field of medicine is in *prenatal diagnosis*. Diagnosis and, to some extent, treatment can be done for many diseases in the mother's womb itself long before

the child is born. Concentration of some substances like alphafoeto-protein in the mother's blood by the fifteenth to eighteenth week of pregnancy may indicate defects of the brain and spinal cord in the foetus. Ultrasound examination of the foetus as early as the sixth week may help in determining the age as well as in detecting morphologic and skeletal abnormalities. More invasive methods include taking samples from different parts of the foetus and placenta with long needles - chorionic villi of placenta by 9th - 12th week or amniotic fluid by 15th - 18th week and doing cytogenetic and biochemical studies with the cells obtained.

Direct biopsy from the skin, liver or umbilical cord of the foetus can be taken by 18-20 weeks. For selected defects even surgery has been performed on the foetus while in the uterus. Early identification of the sex of the infant has been used for doing selective female foeticide in our country, which shows how development of new techniques can be put to use by unscrupulous people.

Genetic engineering involves manipulation of the genetic material present in the cell nucleus which controls the expression of various characteristics of the organism. Deoxyribonucleic acid (DNA) is the main constituent of genes. Recombinant DNA techniques have revolutionised the study of biology and medicine probably more than any technical advance since the development of the light microscope.

The ability to clone and characterise any gene from any organism provides for universal applicability. DNA sequences for the synthesis of various proteins of importance to man have been incorporated into the nucleus of bacteria, yeasts, cultured animal cells, etc. and they are made to synthesise unlimited quantities of purified products. Hormones like insulin, growth hormone, etc., interferons and interleukins - two important proteins in the immune systems used in the treatment of cancer and AIDS, rt-PA (recombinant tissue plasminogen activator) used in the treatment of heart attack are among the hundreds of substances produced in this way. Protein antigens synthesized by this method can be used for vaccination directly or more effectively after incorporation into harmless viruses to produce live vaccines.

A very promising application is going to be gene replacement therapy where the necessary DNA sequence can be incorporated into the cells of an organism lacking it thus providing a permanent correction of the defect. This is much more advantageous than replacement of the enzyme or the factor being coded for

by the DNA sequence, for, they will have to be repeated frequently throughout the life of the patient.

Organ Transplantation Another area in which tremendous advance has been made is in the field of *transplantation of organs*. This mode of treatment is widely practised in the case of cornea, kidneys, bone marrow, heart, lung and liver. It is in the experimental stage with regard to retinal pigment epithelium in retinal degenerative diseases causing blindness, area of the brain called substantia nigra in patients with Parkinson's disease and islet cells of the pancreas in diabetic patients.

Cornea, the transparent anterior part of the eye is the commonest organ to be transplanted and should be taken for donating from a person within 6 hours of dying. In India itself there are about 1 million people who can be cured of blindness by corneal transplantation.

Kidney transplantation is the best treatment for end stage kidney failure. Good results are obtained with related donors, an identical twin being the best, as they have the same HLA antigens (Human Leucocyte Antigen) as the recipient and so the chance of rejection due to development of immunity against the donor kidney by the recipient's body is minimum. Even in other related and cadaveric donors the more the similarity between the HLA antigens of the recipient and the donor, the better the results.

With the availability of drugs like cyclosporine (a substance derived from a fungus) rejection rates are much less. 75-90% of transplanted kidneys are functioning well for one year and approximate long-term life span of transplanted kidneys is 7-9 years for cadaveric transplants, 11-12 years for haplo identical relatives and 30-34 years for identical siblings. Kidneys from cadavers can be salvaged and stored for upto 2 days in special solutions.

Though the first heart transplant was performed by Dr. Christian Bernard in 1967 it gained popularity only recently and is the treatment of choice for intractable heart failure. Around 1500 cases are being done every year, the main limiting factor being the availability of organs. Current 1 and 5 year survival rates are 80% and 60-70% respectively and the longest survival is 19 years.

Liver transplantation is also quite successful with 1 year survival rate of 70%. Another organ that is being successfully transplanted is the bone marrow which is the site of blood cell production. In immunodeficiency diseases success rates approach 100% whereas for different types of leukemias it ranges from 10-50%. Pancreas has been replaced in diabetics along with the kidney but with less than 50% one year survival.

The Health of The Nations

Nations	Pop. (m)	Infant mortality	People per doctor
Afghanistan	17.7	162	4,797
Australia	17.4	8	438
Bangladesh	116.1	108	6,219
Bhutan	1.5	118	9,736
Brazil	154.6	57	684
Brunei	0.2	7.5	1,323
Burma	42.6	59	3,485
Cambodia	8.5	116	27,000
Canada	26.8	7	467
China	1,158.4	27	724
Egypt	55.2	57	616
Fiji	0.8	20	2,028
France	56.8	7	399
Germany	78.5	8	378
Hongkong	5.7	6	982
India	848.2	88	2,075
Indonesia	182.5	65	7,238
Italy	57.7	9	234
Japan	124.3	5	634
Kenya	25.8	64	7,122
Laos	4.3	97	97
Macau	0.5	7	834
Malaysia	18.3	13	2,656
Maldives	0.2	50	7,692
Mexico	83.8	36	980
Mongolia	2.4	60	390
Nepal	19.6	118	20,234
New Zealand	3.4	8	522
Nigeria	117.5	96	6,900
Pakistan	116.4	90	2,122
P.N. Guinea	3.9	53	6,070
Peru	22.8	76	1,016
Philippines	63.4	40	1,016
Saudi Arabia	15.7	58	852
Singapore	3.0	7	753
South Africa	36.4	62	1,340
South Korea	43.4	21	1,139
Sri Lanka	17.5	21	5,516
Taiwan	20.6	5	961
Thailand	57.2	24	4,361
Turkey	59.8	62	1,275
U.K.	57.4	8	611
U.S.	251.7	8	404
Vietnam	69.3	43	3,140

Infant mortality records death rate per 1,000 live births. People per doctor refers to physicians who meet World Health Organisation standards.

Endoscope Fibre optic endoscopes are having wide application in the diagnosis and treatment of diseases. As light travels through the optical fibres in their core, internal organs can be seen even while bending these flexible tube-like devices. Bronchoscopes for lungs, gastroscope for stomach and upper intestine, colonoscope for the lower intestine, laparoscope for the abdomen, hysteroscope for the female genital tract, arthroscope for joints and angioscope for blood vessels are available. In addition to viewing the internal organs for making a correct diagnosis, samples can be taken for biopsy, foreign bodies can be removed, small tumors can be excised and bleeding vessels can be tackled through these devices. In many instances an experienced operator can achieve with these endoscopes, things that would have required major operations in the past.

The use of ultrasound and LASER have revo-

lutionised medicine. Not only is ultrasound used for viewing the internal organs but high energy ultrasound can be used for pulverising stones in the urinary tract and the gall bladder (Extra corporeal Shock Wave Lithotripsy (ECSWL) and thus avoiding surgery. Lasers have been used for photocoagulation of the retina of the eye for preventing blindness in diabetics, for cutting through tissues in surgery and even for removing atherosclerotic plaques from blood vessels.

Other sophisticated diagnostic imaging methods using computerised techniques are available. Computerised Axial Tomography (CT scan) utilising X-rays, Magnetic Resonance Imaging (MRI scan) which gives excellent soft tissue characterisation without the risk of radiation and Positron Emission Tomography (PET scan) for studying the metabolic activity of various tissues are a few of them.

Computers

The 20th century is witnessing a computer revolution in which information processing and retrieval are being done reliably at incredible speeds.

Today microprocessors can be found in children's toys, word processors, pocket calculators, industrial robots, home appliances, etc. - to mention a few of their innumerable uses - and there is practically no new machine, instrument, control equipment or information system that does not have a microprocessor in it.

Five Generations The first four generations of computers were based on the technology of the age to which they belonged. They were thus based on the vacuum tube technology; the transistor and printed circuit technology; the integrated circuit technology and the Very Large Scale Integrated (VLSI) technology, respectively, during the last four decades. The marvel of the fourth generation VLSI technology is that a microprocessor weighing a few grams - a thin 2" x 1" silicon chip - can store 512 K or 512 x 1024 bits of 0s and 1s. (Note: bit is an abbreviation for the binary digit). Presently the development has entered areas of "Artificial Intelligence." These are generally called Fifth generation computers.

Computers are analog or digital machines. Those converting numbers into physical quantities, which can vary continuously within a range are called analog computers, while those using numbers, (which are discrete values) are called digital computers. There is a third class of

computers called hybrid computers which have digital storage and switching but in them calculations are done in an analog fashion.

While analog computers are for specific scientific/technological operations-such as harmonic analysis, solution of simultaneous algebraic and polynomial equations, solutions of differential equations, etc. in fields such as hydrodynamics, aerodynamics, aerodynamics, industrial control, etc., the digital computers are universal in that they have applications not only in the scientific field but also in the field of business and administration. Further, due to their superior flexibility and accuracy, the digital computers dominate the contemporary computer scene, the latest of which are called microcomputers.

History Though the origins of the mechanical digital calculators can be traced to the mathematicians Blaise Pascal (1623-62) and Gofffried Wilhelm Leibnitz (1646-1716), Charles Babbage (1792-1871) was the first to think of a machine to produce and store the tables of logarithms invented by John Napier (1550-1617). He designed first a difference engine and later an analytical engine, an all-purpose calculating machine. But, despite his best efforts, the use of all his resources and a substantial British Government subsidy, success eluded him.

The origins of the present technological revolution can be traced to the '30s. The thermionic valve discovered in 1904, was found to be useful as a counting device by Wynn Williams in

The Optical Computer

Faster, mightier, smaller" is still the mantra for computer designers, even though they already have silicon chips so tiny that electronic signals bustle through pathways only a Lilliputian could see. But there is a limit to how fast this tiny electric traffic can go without a jam. In 1993, University of Colorado electrical engineers Vincent Heuring and Harry Jordan presented a solution to this speed limitation - or rather, a crude prototype of a solution: the first fully "optical" computer, one that stores, shuttles, and processes its data entirely in the form of light.

An optical computer uses light that flows fast and freely at 186,000 miles per second, the fastest speed in the universe. Better yet, photons of light don't interfere with one another, because they lack mass and electric charge. So light beams can crisscross or move side by side without holding up traffic.

Heuring and Jordan's clunky-looking contraption, five years in the making and the size of a compact car, wasn't designed to perform complex calculations - its memory is too small. Instead it serves as a "proof-of-principle machine": it proves that a computer can be built that stores its information in the form of light. In the Colorado researchers' machine, pulses of laser light zoom through two and a half miles of coiled fiber-optic cable. Each light pulse represents a one in binary code; darkness represents a zero. A sequence of these numbers traveling through the cable resemble a train whooshing by carrying a cargo of digital information, with each 12 foot long "car" consisting of light or darkness. Traveling at the speed of light, each car completes about 75,000 laps through the coil in a second.

Unlike electric signals, which stop after they're written on a silicon chip, the data trains keep going: the pulses of light never stop, racing continuously around and around the cable. A high speed counter interacts with the computer to keep track of what data are where in this loop.

To retrieve a particular bit of data, the computer tells the counter where the bit is at that moment. The counter then calculates when the bit will reach the out-put port, and at that point the bit can be switched to some other place.

Switching data to other places is the critical step that enables computers to perform calculations - as when in adding columns of numbers you "carry," or switch, the overflow into the next column. Manipulating data with this computer, says Jordan, "works almost like railroad switches. You throw them in one direction before the train gets there, and it goes on through." But instead of the railway switchman giving them the old heave-ho with a crowbar, these switches are changed by activating wave-guiding crystals that receive a signal from the computer, then

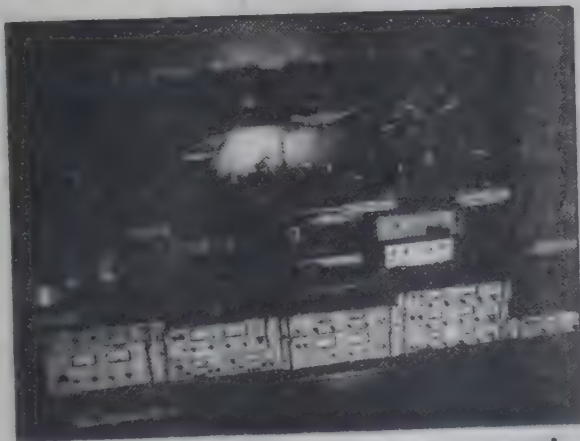
reroute the light beams by crisscrossing them.

Heuring and Jordan's machine is enormous for its limited capability - it has the power of a small personal computer - but then, the first electronic computers filled entire rooms. The two researchers are already looking to the next generation. Jordan is working on a palm-size version that will perform calculations 400 times faster. Heuring is trying to

away with the wave

guides, which can switch only two beams at a time, replacing them with transparent grids lined up like dominoes: dots on the grids would act as optical traffic cops, redirecting light beams. The beams themselves would no longer be inside cables but could instead bounce around and crisscross in the open air, executing zillions of instructions simultaneously.

Eventually, says Jordan, the use of optics in computers will be commonplace, producing machines hundreds or even thousands of times more powerful than today's. "At some point we're going to say, 'Of course optics are used with computers, when did that happen?'" On that day we may look in our on screen history books and notice that 1993 was a very important year



The first optical computer to store and process data purely in the form of light

1931. The Harvard Mark 1 Computer designed by Howard Aiken is the world's first digital computer which made use of electro-mechanical devices. It was developed jointly by the International Business Machines (IBM) and the Harvard University in 1944.

In February 1946, the world's first all-electronic digital computer called ENIAC, the Electronic Numerical Integrator And Calculator, was formally dedicated. This first generation computer based on vacuum tube technology could store twenty 10-digit numbers. It has a multiplication time of 3 milliseconds for two 10-digit numbers and it could perform about 5000 additions per second. The ENIAC contained 18,000 vacuum tubes, about 70,000 resistors, 10,000 capacitors and 6000 switches. It was 100 ft. long, 10 ft. high and 3 ft. deep and weighed about 30 tons. It was a decimal machine unlike the later computers (starting with the EDVAC in 1950) which are based on the binary (0, 1) system of numeration.

In June 1945, John von Neumann, an outstanding mathematician and logician, prepared the "First draft of a Report on the EDVAC" (Electronic discrete Variable Automatic Computer), which in the words of Hermann H. Goldstein, a collaborator of von Neumann, is "the most important document ever written on computing and computers". The standard von Neumann architecture for the digital computers, incorporated in their structural design the Input, Output, Memory, Arithmetic Logical Unit (ALU) and control units. This traditional von Neumann design is based on a single central processor unit (CPU) performing operations sequentially on an ordered sequence of instructions, called a program, to produce the desired result.

Binary System Zero and one in their endless combination constitute binary system on which computers are based. In a scheme of numeration with the base ten requires ten symbols or ciphers (including zero), an arithmetic with the base two requires only two ciphers: 0 and 1.

The binary numbers for the following numbers are written as 0 - 0; 1-1; 2-10; 3-11; 4-100; 5-101; 6-110; 7-111; 8-1000; 9-1001; 10-1010; 11-1011; 15-1111; 16-10000.

Under the binary system the ordinary arithmetical operations are reduced to their simplest form.

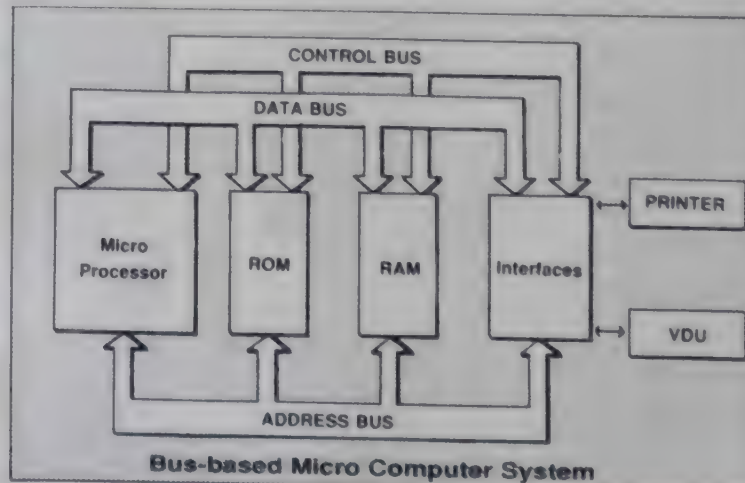
The binary system of numeration was used early in the seventeenth century by Thomas Harriot.

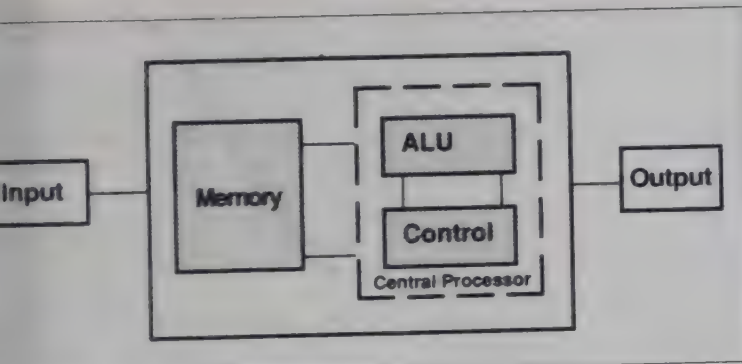
Programming Language Computerware can be divided into hardware and software. The five functional units of a computer built with electronic circuits and electromechanical devices constitute the hardware. Software refers to the range of programs or routines used on the hardware to perform various functions.

Programming is the name given to the 'art' of writing a program. Every machine, depending upon its internal hardware architecture, has a unique low level language called the machine language. In a binary-coded digital computer the machine language is made of 0s and 1s. Assembly language uses mnemonics for machine language. To relieve the programmer from the tedium of writing a program in the difficult, low-level machine language, several hundreds of easier, high-level programming languages have been developed. High level languages are comprehensible representation of machine code using mnemonics in Assembly language. Of these, FORTRAN (FORMula TRANslation), ALGOL (ALGOrithmic Language) and BASIC (Beginners All-purpose Symbolic Instruction Code) are the most widely accepted general purpose programming languages, while COBOL (Common Business Oriented Language) is the programming language for business applications. C language is the recent and most powerful one. It's available for DOS, Windows OS/2 and Unix platforms. There are new versions of C like C++, Visual C, Quick C & Turbo C.

BASIC is a user "friendly" language resembling English and it is an on-line conversational language. Developed by John Kemeny and Thomas Kurtz in the mid-60's it has been quickly adopted by commercial time-sharing services.

With the advent of microprocessors, in the mid-70s, BASIC was made available as a Read Only Memory (ROM) chip. In 1978, the American National Standards Institute (ANSI) standard





Traditional Von Neumann architecture

ed a subset of Basic to promote uniformity. BASIC has many dialects and several of these include features not in the ANSI Standard. CBASIC and BASICA are two of the versions of BASIC.

Computer Programming languages are often distinguished as being either compiled or interpreted languages. The users' program in the high-level programming language is called the source code. The manufacturer of the Computer supplies the required software, either a compiler or an interpreter, for every user language implemented on it. The compiler translates the source code into a machine language program called the object code. This object code together with the date, if any, in the source program is then executed in the next stage.

Thus, in a compiled language, there are two phases when the program is run - the compilation phase and the execution phase. An interpreted language, on the other hand consists of only the source program. It is translated line-by-line directly into machine language instructions, every time the program is executed for a given set of data. The Microsoft BASIC language is an interpreted language. It is easier to develop a program using an interpreted language.

Today computers can be classified as mainframe computers, mini-computers and micro-computers. Mainframe computers are expensive, large, centralized computer facilities where a Super computer (like the CRAY or CYBER) or a large computer (like the IBM 3033, CDC 7600, DEC 10, IBM 370 models etc.) is connected to several terminals. A multi-user mainframe computer has a large memory and is capable of speeds of the order of several millions of floating-point operations per second (Mflops). Mini-computers are also multi user computers having lesser memory and operating at slower speeds. In the mini computer category are the extremely popular PDP-11 and the VAX-11 computers of the Digital Equipment Corporation (DEC). Micro-computers are based on standard micro-processors marketed by Zilog, Intel,

Motorola, etc. A micro-processor is a single silicon electronic chip which contains the ALU and the control unit. Some of the most commonly used micro-processors were Intel's 8086, 8088, 80286(16-bit), 80386(32-bit) and Motorola's 6800, 68000, 68010, 68020, 68030. Newer ones are Intel's, 80486(32-bit), Pentium(64-bit) and Motorola's 68040 and Power PC(64-bit). Currently 64 bit microprocessors are available which enable machines based on such processors to perform faster than main frames of yesterday.

Some of them are CSIC (complex instruction set computing) based Pentium from Intel; RISC (reduced instruction set computing) based Power-PC from Motorola, IBM & Apple; Alpha from DEC (Digital Electric Crop.)

The latest from the Intel camp are the 90 and 100 MHz versions of the top-of-the-line Pentium family and DX4/100 of the 486 family. Next in the line is P6 to deliver 300 MIPS.

Processors prior to 486 are supported by corresponding co-processors like 287 and 387 to enhance Floating Point operations.

Micro-computers are often called *Personal Computers* or *PCs* since they were originally intended to be single user devices either at the office or at home. The home computer is a PC which allows the home appliances as input/output devices - viz the T.V. and the cassette tape recorder as the output and input/output devices, respectively. Some of the extremely popular home computers are the Commodore, Sinclair and Apple.

The Micro World The micro-computer industry was revolutionized by the entry of IBM, which started marketing PCs in 1980.

Essentially a micro-computer consists of a System Unit, the Keyboard and Visual Display Unit (VDU). The Printer is an auxiliary unit essential to get the output from the micro-computer as a hard-copy. The standard typewriter keys - viz A to Z, 0 to 9 and certain special characters together constituting the alpha numeric characters - are an essential part of all the micro-computer keyboards, which also have two or three additional groups of keys.

A set of ten special Function keys (F1 to F10) exist as a group and these can be programmed to perform special tasks (in the programming mode). A total of 84 or 101 or 121 keys are on the keyboard of an IBM PC and the keyboard is connected to the System Unit of the Micro-computers via a coiled cable. Recently an ergonomic split keyboard has been developed which is designed to reduce finger fatigue and

enhance speed.

The VDU is the video display terminal for the micro-computer system. This can be either a monochrome (black and white) or colour monitor.

The HGA monochrome (Hercules Graphic Adapter) monitor has a resolution of 750 by 348 pixels ; the VGA (Video Graphics Array) monitors has a resolution of 640 by 480 pixels and SVGA (SuperVGA)supports from 800 by 600 pixels to 1024 by 768 pixels .It can display 16 to 256 colours or 64,000 shades depending on the adapter used. A Colour / Graphics Monitor Adaptor board (or printed circuit) is essential as an interface to enable the use of a colour monitor. (A colour TV set can also be used with a radio frequency modulator). The monochrome or low-resolution Alpha-Numeric (A/N) mode produces on the VDU screen 25 lines of 80 characters each.

The System Unit contains the heart of the micro-computer - a micro-processor (Intel 8088 in the case of an IBM-PC which can address upto 1MB of memory and has a speed of about 0.65 million operations per second), the Dynamic Random Access Memory (DRAM), floppy disk drive(s) for auxiliary storage, a built-in speaker and some (5 to 8) expansion slots for system enlargement. Additional dynamic memory (RAM) boards, chips and modules can be used to enhance the memory of the micro-computer. The ROM stores permanently programs essential for the operation of the micro-computer.

In the ROM we have the Basic Input/Output System called BIOS and the boot-strap loader. BIOS is a collection of programs that control the transfer of characters between the micro-processor and the various input/output devices like the VDU, Keyboard, Printer, etc. connected to it. The bootstrap loader starts the Computer Operating System from the auxiliary disk storage (either the Floppy Disk Drive, FDD or the Hard Disk Drive, HDD).

Modular The micro-computer is modular in design and the modules (or blocks) are interconnected through a bus, which was first proposed for the PDP-11 mini-computer and has since become standardized in its design characteristics. The Bus is a micro-processor version of the UNIBUS of PDP-11, while INTEL came up with the

MULTIBUS-based computer and Motorola has the VME bus- based computer.

The micro-processor or (silicon) chip combines the ALU and the Control Unit. The memory (ROM and RAM), the micro-processor, interfaces for the Keyboard, VDU, etc. expansion slots, speaker and timing circuits are all on the mother board of a micro-computer system.

Most of the 8-bit micro-processors can only address 64KB of memory at any one time, while most 16-bit micro-processors can address 256KB to 16MB of memory. Moreover, 16-bit micro-processors process data faster, at 2 to 10 times the speed of an 8-bit micro-processor.

Desk Top System The fourth generation micro-computer like the IBM-PC is a small desk-top system with two floppy disk drives (FDDs). It employs a micro-processor and has a RAM, five expansion slots and functions under the Operating System called PC-DOS.

In the spring of 1983, IBM released an extended version of the IBM-PC, called the IBM-PC/XT. The XT includes a 10M Winchester or hard-disk drive (HDD) 128KB of RAM expandable to 640KB, one 360KB floppy disk drive (FDD), an asynchronous Communications Adapter, and 8 expansion slots. Together with the XT, a new version of DOS, viz. DOS 20, was made available containing a number of enhancements over the earlier versions.

IBM introduced an Advanced Technology PC called the IBM-PC/AT, in 1984, which made use of the more advanced and powerful Intel 80286 microprocessor capable of addressing 16MB of main memory and 1 billion bytes of virtual memory. The IBM-PC/AT with memory upto 256MB are available.

Floppy Disks The most widely accepted form of auxiliary storage used in microcomputers is the floppy disk storage. A floppy diskette is a round vinyl disk enclosed within a plastic cover. The 3 1/2" diskettes are becoming universal and are fast replacing the 5 1/4" diskettes. Depending upon the Operating System under which the microcomputer functions and the nature of the FDD, information can be stored on the floppy diskette either on one-side (single-sided) or two sides (double-sided) and in single density (SD) or double density (DD) or high density (HD). Now floppy diskettes belong to mainly DSDD or DSHD. Density refers to a diskette's recording

Bytes				
Kilobyte	1,024	Kilobytes		
Megabyte	1,048,576	1,024	Megabytes	
Gigabyte	1,073,741,824	1,048,576	1,024	Gigabytes
Terabyte	1,099,511,627,776	1,073,741,824	1,048,576	1,024

Gates and Windows

Bill Gates' Windows 95 pre-installed, is an operating system in itself. Windows 95 has a fundamentally different design from the current version of Windows and incorporates many features found in programmes like Macintosh and IBM's OS/2. The minimum configuration for running Windows 95 will be 386 DX with 4MB of RAM. However for using the full potential of Windows 95, the minimum configuration would be a 486 with 8MB of RAM. The complete Windows 95 package occupies about 25 to 30 megabytes of hard disk space after installation.

The upgradation cost for users of Windows 3.1 will be only Rs. 3,600 while those wishing to buy the new product will have to shell out Rs. 6,400. Computer experts believe that the entry of Windows 95 will bring down the prices of software considerably in the coming years.

Here's what it has to offer:

- ◆ **32-bit design:** Previous Windows programmes relied on 16-bit design, a term that refers to the size of the words or directions in a programme. A 32-bit should perform twice as fast as a 16-bit one.

- ◆ **Start button** An icon on the screen provides a

common place to open a file, launch a program or get help.

- ◆ **Task bar** A strip on the screen shows what programmes are running and allows a person to switch back and forth between them.

- ◆ **Multi-tasking** A person can run several programs at once, such as writing a letter while a spread-sheet is calculating an investment portfolio while an on-line browser is scanning for the latest stock prices.

- ◆ **Long file names** Previous windows confined file names to eight letters. Windows 95 allows 255 characters.

- ◆ **Shortcuts** They allow an icon to be created for specific documents and placed on the main screen.

But disadvantages remain. While Microsoft says Win 95 will perform as well as the current Windows on computers that use a 386 microprocessor and 4 megabytes of memory, it recommends more powerful machines that will consume more power.

Worse, some antivirus programs that used to work under the old Windows won't do well in the new.

format, which in turn affects its capacity. Roughly the capacities of 5 1/4" mini SSSD, DSDD and DSHD diskettes are 180KB, 360KB and 1200KB, respectively. 3 1/2" DSDD and DSHD disks have a capacity of 720 KB and 1440 KB respectively. *Magneto Optic Drive* and *Cartridges* are the latest and are available in capacities of 21MB, 128MB, 650MB and 1GB. They are laser-based, very expensive and are expected to be the future drives. It is both read & write medium. CD-ROM is a read-only storage peripheral device. Digital Audio Tapes are widely used for archiving purposes.

Hard Disks: The Winchester or hard disk drives can store much more data than what can be stored on a floppy diskette. Hard disks come sealed and they cannot be removed or changed like floppy diskettes. Often floppy disk systems are used in conjunction with the Winchester disk system. The technologies for hard disk has changed over the period of time. The first hard disks were bulky and had low capacities. Current hard disks are available in capacities of 40MB to 2GB or more and just as small as a 3 1/2" FDD.

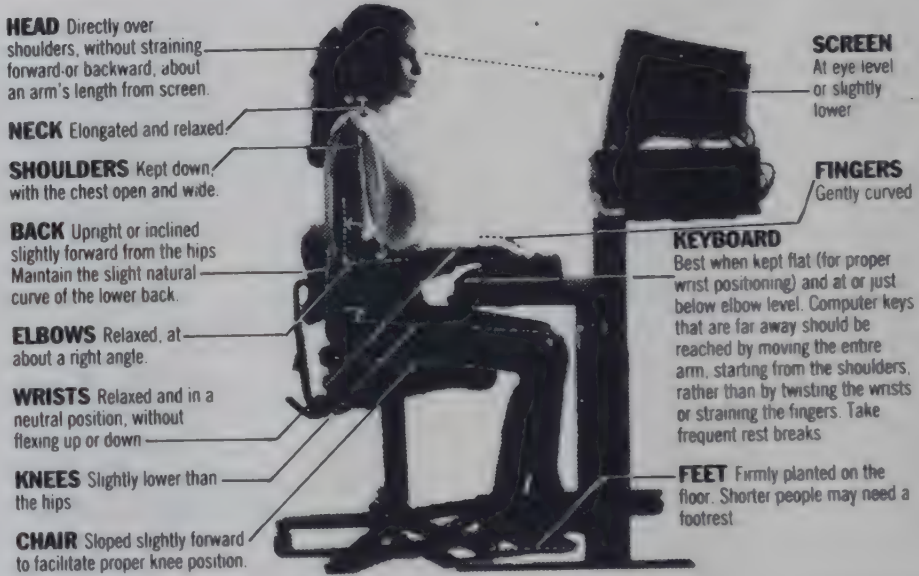
The interfaces used currently are IDE (Integrated Drive Electronics) and the faster SCSI (Small Computer Systems Interface). The latter can be used to interconnect any other SCSI

devices besides hard disks.

The Operating System (OS) The OS of a computer is a group of programs that manages or oversees all the operations of the computer—such as CPU, Memory, Keyboard, Floppy Diskettes, VDU etc. The OS is responsible primarily for managing the files on the disk and the communication between the computer and its peripherals. When power is switched on to the microcomputer the operating system is first loaded (before the user programme is entered) and this process is called booting.

Microsoft introduced the Operating System called MS-DOS for the Intel 8088 microprocessor. IBMs PC-DOS is a version of Microsoft's XENIX operating system, which in turn is a version of the UNIX operating system. All operating systems have in-built commands and small programmes residing on disk, which when run behave like commands. PC-DOS has nearly 50 commands for system settings, disk maintenance, file maintenance, etc. most of which are understandable from their names (while C/P/M 80 has 12 commands). IBM's OS PC DOS(6), MS-DOS(6.2) and Novell's DR DOS(7) support single-tasking. Now, Windows NT's (New Technology) Cairo, an "intelligent" OS on its own fetch information and is a full fledged multitasking work

Comfortable Working Posture While Operating a Computer



ing on 32-bit mode. Apple's Macintosh was the first to introduce Graphic User Interface (GUI). Now, OS/2 with GUI is available for IBM's PS/2.

The Printer The Printer usually used along with a microcomputer is a dot matrix printer, wherein a 9 pin (vertical) head creates matrix pattern to form the characters. Character sizes may range from 5 to 16.5 characters per inch. On an 8 inch line width, pitch sizes of 5, 8, 25, 10 and 16.5 produce a maximum of 40, 66, 80 and 132 characters per line, respectively. The dot matrix printer is connected to a parallel communications port at the back of the System Unit. Today printers are available in speed upto 1066cps (characters per second).

Dot matrix printers are bi-directional. Thermal printers and Daisy-wheel printers which are rugged are now-a-days seldom used. Ink Jet, Bubble Jet and Laser Jet printers are currently available which are quiet, faster and more efficient though very expensive.

Future Trends During the late 70's Artificial Intelligence received a fillip and two popular languages were evolved. These are PROLOG and LISP. These enable building into the computers an intelligence with the help of a knowledge base. For applications like Robotics, where a machine performs repeatedly a task even under hazardous conditions and in the presence of obstacles, computer vision and AI play a big part. All Robots invariably have a Microprocessor as their controller. Artificial Neural Networks and

Expert Systems are presently available as software support from a large number of vendors.

Parallel processing and distributed processing are techniques of the early 90's to achieve greater speeds. India has developed its own Parallel Processing Computers PARAM and Anura series. Nearly 100 MFLOP's speed was achieved.

The Multimedia PC of the Future No one can imagine for sure, what they will look like. Panasonic's new Galileo Media Explorer could perhaps, throw some light. The Galileo Media Explorer is also called a, 'modular multimedia display system'. Essentially, it's a cabinet housing a large (43 cm), high resolution colour monitor with slender speakers built into the side panels of the display. Above and below the screen are slots that hold many types of audio, video, and storage devices.

The top slot, called QuickBus, holds one of a number of cartridges, including ones that can add a TV tuner, speaker phone, video camera, cordless phone interface. The bottom slot, dubbed QuickBay, holds a variety of removable drives, including CD-ROM, PC Card, and magnetic optical drives. There are also connectors for external devices such as a mouse, keyboard, game controller, camcorder, VCR, and bass booster.

The only thing not contained in Galileo is the computer itself. It is designed to work with a type of Windows PC. It is expected to cost about \$1,000 for the basic unit, including the monitor, speakers, and perhaps a CD-ROM drive.

Digital data compression

The biggest obstacle to the multimedia revolution is digital obesity. That's the bloat that occurs when pictures, sound, and video are converted from their natural analog form into computer language for manipulation or transmission.

But there seems to be a headway. Computerised compression techniques find what is redundant and needless information in a signal and get rid of it. It works so well that digital TV signals can actually be made to take up far less room than analog TV signals.

Compression is expanding and its popularity is rooted in simple economics. Compression actually lowers the cost of storage and transmission by packing data into a smaller space. The potential cost savings are mind-boggling, even if one counts only the data-storage devices and telephone switches that won't have to be bought. If the capacity of copper wires can be significantly expanded through compression - to carry high-quality video, for example - the information Superhighway will effectively extend to people's doorsteps without the estimated \$150 billion expense of laying optical fibres to every home.

Claude E Shannon of AT&T Bell Laboratories helped advance compression in 1948 with his theory of how to maximise the use of communication pipelines. Still, the field was quiet until 1990, when prices fell and effectiveness rose thanks to faster digital signal-processing chips and more efficient mathematical formulas. LEAD Technologies has recently created a efficient programming software with more features and costs just \$99 which it sold for \$1,995 in 1992.

The leading standards emerged in visual compression are JPEG (Jay-peg), for still images, and its younger sibling, MPEG (em-peg), for moving images.

JPEG looks for ways to compress a single image. MPEG does that, and then it goes on to look for redundancies between neighbouring images in a stream of video. Rather than digitally recording each frame in its entirety, it records just a few frames in detail - and then describes others in terms of how they differ from the detailed ones.

One consequence of such pell-mell progress

is a lack of uniformity. Already, standards' disputes are in the courts. Software companies have rushed more than 30 "flavours" of JPEG onto the market, and unless the decoder in the computer recognises the version that was used to compress a particular image, the result on ones computer screen will be multimedia applesauce. There's some fear that the same thing could happen with MPEG.

Tele-communications Inc., US's largest cable company, likes to limit the use of bidirectional or B frames in its digital-transmission system, which promises to deliver 500 channels to the home. But Time Warner Inc., plan to handle B frames in their set-top boxes. If the schism isn't healed, TVs and VCRs with built-in decoders will require extra chips to work on all cable systems.

More advanced compression schemes are being developed in the research laboratories. Two of the hottest areas are fractal compression and wavelet compression. Fractal compression schemes take advantage of the concept that things in the real world appear similar at different scales of magnification. For example, the spikes on a fern look like tiny copies of the fern itself. Instead of recording each spike separately, it's possible to store just one and then use it over and over to recreate the whole picture.

Wavelets compress an image as a whole, rather than block by block as with JPEG and MPEG. Wavelet compression can be put to varied uses requiring high fidelity such as transmitting medical images, storing music, and video editing.

Compression even has ramifications for scientific research. NASA estimates that by the year 2000, earth-viewing satellites will collect data amounting to a stack of magnetic tapes as high as the Washington Monument - every day. Saving and examining all that is no lark and compression can help make it easy.

Still other compression concepts are on the horizon. Meanwhile, less venturesome souls are happily adopting widely recognised formats, like JPEG and MPEG. With standards more or less in place, prices falling, and the appetite for information seemingly insatiable, compression seems to have a limitless future.

Typical uses of compression

Data	Audio	Still Images	Moving Images
Saving room on hard disks of personal computers	Storing more music on audio-tapes & compact disks	Multimedia presentations, law enforcement	Videoconferencing, satellite broadcasting HDTV

Telecommunications

One of the key factors which sustain the pace of modern life style is telecommunications. It plays a very vital role in the commercial, industrial and economic activities of mankind and has helped to shrink the world into a global village. Past couple of decades have witnessed breathtaking progress marking the rapid developments in the field of telecommunications. Exchange of information, data (facts and figures) including live pictures from one part of the world to any other part of earth is now routinely possible.

• Telegraph was the earliest means of communication between two points separated by distance. In 1876 Alexander Graham Bell discovered the telephone which made possible the transmission of human voice over long distances. In both telegraph and telephone the transmitting and receiving points have to be connected by metal wires through which electrical signals travel in the form of current variations. The discovery of wireless at the turn of this century by Marconi was a revolution in the history of communication technology. It was no longer necessary to connect the transmitter and the receiver by wires. Instead, electromagnetic waves, the existence of which was predicted by Maxwell in 1873, could be used to carry information and messages from one point to another.

The early half of this century witnessed a spectacular growth of wireless communication. Wireless telegraphy and wireless telephones linked nations and continents, Ships and airplanes could communicate to their bases and between themselves with ease using wireless. Telecommunication became an integral part of military operations. Regular broadcast of news, features and music over radio became so common place that it became part of modern life. This was supplemented by television in which live images could be telecast to a large number of individual viewers.

In cities, towns and other centres of population, the telephones in the individual houses, offices and other places are interconnected by overhead lines and/or underground multicore cables through a central exchange which provides the switching between the various instruments either automatically or manually. The cities themselves are linked by trunk telephone lines. Coaxial cables and microwave links are usually employed for

this purpose, as these arrangements have the added advantage that they can provide a large number of channels, so that a number of two-way telephone conversations can take place simultaneously. Such communication links can also provide telex facilities in which electric teletypewriters may be interconnected to transmit and receive printed (typed) messages. In a facsimile process, printed image on a whole page can be transferred faithfully from one place to another using fax machines.

The advent of artificial satellites marked a new age in the history of global communications. Such communication satellites usually function as active relays high up in the sky and this can interconnect a large number of stations separated by vast distances in different parts of the globe through microwave links. The geostationary satellites positioned at a height of about 36,000 km have the advantage that they have a stable position in the sky with respect to any point on earth. Three such satellites symmetrically stationed can cover the entire earth and any two points on earth can be linked using them. India's INSAT-1A and INSAT-2A are such satellites stationed in the geosynchronous orbit. They provide a large number of telephone, telecircuits between various Indian cities. International telecommunication has now become virtually satellite-based. In addition radio and television networking over the entire Indian subcontinent are done through satellite technology which is rightly called space age communication techniques.

Networking of computers also has become possible through such arrangements and these large area networks (LAN) of computers are essential for railway/airline reservation systems, banking, meteorological data gathering etc.

Use of light waves for communication purposes gave rise to the modern technology of optical communication. In this new method optical fibres which are very thin, long (several tons of kilometers) strands of ultra high purity glass are being used to link the transmitter and the receiver. Information in the form of a series of light pulses produced by small semiconductor lasers are passed through such fibres. At the receiving end these light pulses are converted back into original information using appropriate detectors and decoders.

Optical Fibre

It is a transmission system which uses glass fibres in place of the conventional copper wire. The system works by converting electrical signals into optical signals using a device called a light emitting diode.

Optical fibres have been used for transmitting signals as early as the 18th century. In fact, the history of communication by sending light signals goes as far back as ancient times, when smoke signals and lighthouses were effectively used for long-distance communication.

The optic fibre is clearly proving to be the wonder fibre of the future. The use of optic fibre goes as far back as 1842, when European countries used optical signals for war purposes. The first fibreoptic network is said to have been installed in the USA in 1977. Since then, most of Europe has been operating on optical fibre, and now Australia, China, Japan, Indonesia, Malaysia and Singapore have fibre optic networks. The first time synchronous digital hierarchy (SDH) was deployed on a large scale was at the 1992 Olympics at Barcelona, for which Philips supplied the equipment.

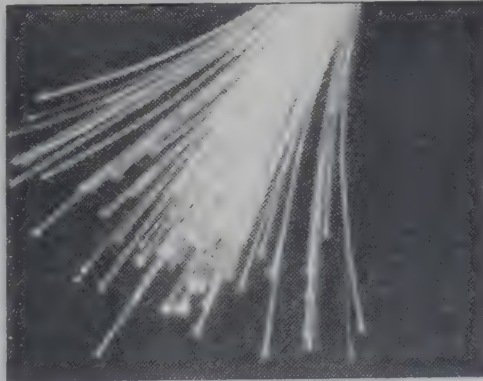
Optical fibre is being increasingly preferred for telecommunications networks as it scores over the old system on several heads. The biggest advantage is that it can carry much larger volumes of information than a conventional copper cable. For instance, a SDH which transmits information at the rate of 2.5 gbps can carry 40,000 telephone calls simultaneously. With the explosion in information and subscriber growth fibre optic technology with its unlimited bandwidth is the ideal medium. Copper cables, with their limited carrying capacity of 34 mbps simply can not cope with speed that is needed today.

Conveying incredible amounts of information is only one of the feats that this hair-thin filament of glass is capable of. Fibre optic cables can carry signals for much longer distances without the use of repeaters. While conventional electrical systems need repeaters after every two kilometres, an optical fibre cable can work perfectly well for 70 kilometres without these devices. What is more, this repeater less space is being enhanced to several hundred

kilometres through laboratory experiments.

Fibre optic telecommunications is just like any other piped product. Fibres drawn from the purest kind of silica are used to send information which could then be retrieved at the other end since it is extremely coherent and capable of being modulated.

An optical fibre cable consists of several fibres (the DoT uses cables with 6, 12 or 24 fibres) packed in tubes filled with a special water-resistant jelly. The cable is then covered with a polyethylene coating and a nylon sheathing, and sometimes a steel armouring to protect it from rodents. Since glass fibre is electrically a non-conductor, it is not affected by electromagnetic interference. It is also immune to thunderstorms, lightning or large electrical motors.



In India the deployment of fibre optics in the public network began with the installation of an experimental junction link in Pune between two telephone exchanges followed by a long haul trial route between Baroda and Ahmedabad. Besides telecommunications, fibre optics also lends itself to several consumer-oriented applications. All kinds of data including video can be transmitted

through optic fibre. In fact, with its limitation of 34 mbps, copper can hardly cope with the vastly swelling flows of traffic. Because of this, most of the trunk traffic is now on fibre.

Today, there is an estimated 25,000 kilometres of fibre installed in the country. Fibre is the future for safe, reliable communications, especially for transmitting accurate, high-speed data, which is not possible with copper.

Optical fibres are not only lighter, but also cheaper than copper cable, since the basic raw material - sand - is available in unlimited quantities. Just 1 kilogram of glass metal (silicon tetra-chloride) can be turned into 38 kms of glass fibre. For their features of longer repeater-less spans, higher level of reliability and wider bandwidth, these systems are playing a major role in longhaul applications. India is poised to make an imprint on the world map of fibre optic telecommunications with deregulation of its telecom sector.

ers. Human voice, T.V. pictures and computer data can be transmitted and received with great ease and convenience using optical fibre communication techniques. Optical fibres are not only inexpensive, but they can also carry messages without using repeaters over very long distances. They possess very large channel capacity in addition to several other technical advantages. Thus fibre optics has ushered in a new era in telecommunications and the future obviously belongs to light wave technology.

Cellular Mobile Popularly known as car telephone, this service allows two-way communication between a mobile or fixed telephone and another mobile or fixed telephone. All standard facilities like STD/ISD, fax etc. are available with mobile phones. The mobile phone need not be fixed to a car, but if the set is portable, one can carry it wherever he moves.

Radio Paging It is nothing but a poor man's cellular phone, facilitating one-way mobile communication to users. A person carrying a pager can be contacted while he or she is on the move, by his office or even others. If one gets a message on his pager that he was required and should call up the number, which flashes on his pager. All one need to do is to go to the nearest PCO and establish contact with his office. In fact, an extensive pay-phone network, in conjunction with radio paging, is a good substitute for cellular network. Particularly useful for professionals on the move.

Electronic Mail This is the only value-added service which has actually become operational. It allows electronic transfer of letters, documents from computer to another using telephone lines. A computer, a telephone and a modem, is needed for one to subscribe to a commercial e-mail service. The cost of sending data contained in one A-4 size paper is cheaper than all other modes of communication.

VSAT Service This service provides satellite-based network for business communication, using the cost-effective VSAT (Very Small Aperture Terminal) technology. All it does is to link head office of a company or a corporate house to its various locations like factories, service units and other offices, particularly those located in remote areas, using the satellite network. Such networks are called Closed User Group (CUG) networks. Besides high speed data transmission from one location to another, people can even talk on the network.

EDI (Electronic Data Interchange) Enable two organisations, usually a customer and a supplier, to exchange routine documents such as purchase orders and invoices using standard electronic forms and their own computers, linked through a service provider. It is faster, cheaper and reliable means of exchanging export documents. It works on internationally accepted protocols and facilitates quicker exchange of documents.

Voice Mail If one wants to enjoy the benefit of a telephone, without actually owning one, he should subscribe to voice mail. Get a voice mail address (similar to a telephone number) and he can get all his calls on that number, at the evening or any given point of time, he can access his mail box, from any telephone. He can see (or listen) if there is any mail waiting for him. It is just like owning a post box in the post office.

Video Conferencing Holding a conference with one's foreign partners or addressing a press conference in four different cities without travelling long distances has become a reality with the advent of video conferencing. All one has to do is to go to the studio of the service provider at the appointed hour and hold a video conference, via satellite link, within India or abroad. Such a system is going to cut travel costs and time for executives of top companies.

Lasers

Since its invention 30 years ago, the Laser has emerged as an indispensable tool in research, industry, communications and medicine.

What instrument can detect fingerprints, weld car parts, husk groundnuts, play music, drill holes in baby bottle nipples, transmit phone calls, repair detached retinas, stop a speeding atom dead in its tracks, measure

continental drift, shoot down missiles, move atherosclerotic plaque from clogged arteries, check out food purchases, print a document, cut fabric for a suit of clothes, dig a subway tunnel and create a work of art.

The device in question is the laser (an acronym for the light amplification by stimulated emission of radiation), and this list is just for starters. Once thought of as sci-

tion, the laser has emerged from the scientific laboratories where it was first developed some 30 years ago to become an indispensable tool in industry, manufacturing, medicine and communications. And its influence continues to grow.

Among 20th-century scientific inventions that have found their way from the laboratory bench to the living room, the laser ranks right up there with the vacuum tube, the transistor and the integrated circuit.

In simple terms, a laser is "harnessed light"—an intense beam of radiation of one color, or wavelength, with all its waves travelling at the same rate in the same direction. But creating such a beam was anything but simple.

It all began with Albert Einstein. In 1917, he predicted that under certain conditions, light absorbed by atoms or molecules could stimulate them to emit additional radiation of the same wavelength. While scientists realized in principle that this effect could "amplify" light, the first serious effort to use the effect did not occur for 30 years, recalls University of California physics professor Dr. Charles H. Townes, a laser pioneer and Nobel laureate. The motivation? "To do better science."

In the 1940s, Townes was a young researcher at Columbia University in New York City interested in the fundamental properties of atoms and molecules. One way to learn about atoms was to study the light they emitted when they interacted with different

What is Maser?

The principle of stimulated emission was first successfully applied in 1953 when Charles Townes built the maser (microwave amplification by stimulated emission of radiation). He subjected excited ammonia molecules to microwaves. The ammonia molecules emitted more and more microwaves, until an amplified microwave pulse was emitted from the container. By extension, it is applied to all atomic amplifiers and generators—regardless of wavelength of the signals amplified—from radio waves, through microwaves and infrared waves, to light waves and possibly beyond. Special names are used for masers for particular wavelength or frequency ranges—maser (radio frequency), laser (light, infrared and visible)—but all are based on the maser principle first enunciated by Charles H. Townes in 1955. Because the frequency of the waves produced by a maser is determined by the precisely defined energy levels of the atoms or molecules used in the maser, the frequency is also very sharply defined and constant.

There are two types of emission: spontaneous and stimulated emission. The energy in a wave of electromagnetic radiation exists in units called quanta or photons. When an atom absorbs a quantum of energy, the atom will jump to a higher energy level, that is, one of its electrons will jump to an orbit farther away from the nucleus. When this takes place, the atom is said to go into an excited state. This can happen only if the energy of the higher level is greater than that of original level, then the energy of the photon is just enough to raise the atom to that level. The energy causing the

excitation is known as stimulating energy.

Once in the excited state, the atom has stored energy, which can be given up in various ways. One way is for the atom to spontaneously emit a quantum of the same frequency, thus losing just enough energy to revert to its original state. This is process of the spontaneous emission. Spontaneous emission takes place very rapidly at the high frequencies and short wavelengths corresponding to visible light waves. There is another way in which excited atoms can emit this stored energy. If a wave of the right frequency strikes the excited atom, it stimulates radiation by the atom, causing it to fall to a lower level and emit a photon. Thus one photon comes in, and two photons emerge. Stimulated emission always has the same frequency and phase as the incoming wave, so the wave become stronger in passing an excited atom.

Masers use atomic systems as amplifiers and oscillators. These functions are carried out by electron tubes and transistors at lower frequencies. There are also some functions that masers can perform which other electronic devices cannot do at all or cannot do as well.

Ammonia masers are used in satellite communications. Masers provide benchmark distances that can be used to make calculations for other nearby celestial bodies and will help in making a more accurate map of our galaxy, the Milky Way. A hydrogen maser when applied to timekeeping, it made one of the world's most accurate clocks because of its very stable signal that oscillates 1,420, 405, 751.68 times a second—has wide use in guiding space probes etc.

forms of radiation. "I was using microwaves," Townes explains, "to study the interactions of radiation and atoms, but wanted to use even shorter wavelengths."

From that need to generate shorter wavelengths, he developed a device that used microwave radiation to stimulate the emission of short wavelength radiation from molecules. The year was 1951, and Townes called his device a "maser," for microwave amplification by the stimulated emission of radiation.

"My original purpose," he continues, "was to produce wavelengths as short as the far infrared. But by 1957, I had recognized practical possibilities for reaching wavelengths in the short infrared and even in the visible region of the spectrum. Names were bandied about for the new device—irasers, lasers and xasers—coined when the words infrared, light and X-rays were substituted for the word microwaves in the acronym maser." Eventually, one name stuck, and the laser was born—at least on paper.

In 1958, Townes and Arthur L. Schawlow published a landmark article setting forth how lasers could be built and predicting their characteristics. That publication set off a flurry of activity in industry and at universities in the United States, and the race was on to build an actual device. In May 1960, Dr. Theodore H. Maiman at Hughes Research Laboratories produced the first laser using a rod of synthetic ruby crystal. Within a few years, hundreds of researchers in many laboratories had created dozens of different lasers.

Still, the laser did not really take off outside the laboratory for nearly 15 years, says Dr. Michael S. Feld, professor of physics and director of the Spectroscopy Laboratory at the Massachusetts Institute of Technology (MIT).

"The first lasers," he explains, "were inefficient, costly and ungainly, more suitable for laboratory work than for practical applications. Today, there are lasers no bigger than the head of a pin, and lasers producing light in all parts of the spectrum.

"The extremely pure quality of laser light allows scientists to study atomic and molecular structure and motion with extraordinary precision," Feld says. "We can even see very small effects, for example, the recoil of an atom when it emits a photon (the basic unit of radiation). Recently, scientists have used this laser recoil effect to stop atoms dead in their tracks, giving researchers an unprecedented chance to study the properties of atoms and to test some of the

central theories of modern physics.

In the 1970s, industry launched its lasting love affair with lasers. With their narrowly focused beams of highly energetic light, lasers can weld and cut metal, plastic and even fabric more efficiently and accurately than traditional methods. The laser's cutting edge has revolutionized the way industry does business, from low tech to high tech applications—from "drilling" holes in baby bottle nipples (one of the laser's first commercial uses) to cutting perforations in delicate ceramics used in the manufacture of electronic components, thus reducing the chance of damage.

Lasers are also lighting the way in the burgeoning communications industry. Guided by means of gossamer glass fibres, laser light can carry thousands of times more information than electrical signals in metal cables, making lasers ideal and cost-effective channels for telephone communications. Such optical fibres are being used to transmit telephone calls underseas between the United States and Europe.

Of the laser's myriad and seemingly endless uses, none is more surprising—and gratifying—to laser pioneer Charles Townes than its application in medicine. The "bloodless scalpel" most commonly does its work in surgery by destroying tissue or cells. Energy from the laser is absorbed by the cell's tissue, which is then destroyed or evaporated. Lasers can make extremely delicate incisions, cauterize blood vessels and leave nearby tissues undamaged.

Ophthalmologists soon saw the laser as a nearly ideal tool for operating on the delicate and inaccessible tissues of the eye. Today lasers are used routinely to treat a complication of diabetes called diabetic retinopathy as well as senile muscular degeneration. Both diseases, which are among the leading causes of blindness among adults, involve the proliferation of abnormal blood vessels in the eye. Laser therapy is used to create tiny hot spots or "welds" which coagulate and dry up the vessels.

"Lasers are no longer 'gee-whiz,'" says Dr. John A. Dixon, professor of surgery and director of the Laser Institute at the University of Utah Health Sciences Centre in Salt Lake City. "From their initial success in ophthalmology, lasers are now used in nearly all health surgical specialities, from head to toe."

At the Health Science Centre, for example, surgeons use lasers to destroy benign and malignant polyps of the colon, stop bleeding stomach ulcers and treat cancer of the bladder.

The Sound Laser

Lasers have become ubiquitous: they read the prices of our groceries, play our compact discs, and even clean our clogged arteries. Now, thanks to a group of French physicists, the world has its first saser - a device that amplifies sound the way lasers amplify light. The saser isn't of much use yet, but one day researchers hope to turn it into the world's most sensitive listening device.

Sound is another form of energy, one we are used to thinking of as a wave. But according to quantum theory it can be viewed as both wave and particle, just as light can - and at the scale of atoms it is the particle representation that works best. Sound quanta are called phonons, and atoms absorb and release them. In a solid, the absorption of a phonon makes an atom vibrate in its bonds with neighboring atoms; releasing the phonon allows the atom to relax. The arrangement of those bonds determines the frequency of phonons that an atom can absorb.

The saser built by Jean-Yves Prieur and his colleagues at the University of Paris-South in Orsay and the Pierre and Marie Curie University collects phonons the way a laser does photons. The device consists of an inch-long rod of ordinary glass, chilled almost to absolute zero to eliminate vibrations from heat. Attached to one end are piezoelectric crystals, which are crystals that emit a sound vibration when an electric current flows through them.

The physicists first pumps up certain atoms in the glass with a two-and-half-micro-second sound pulse of carefully chosen intensity and frequency. Then they send through the pulse of sound they want to amplify. Those phonons travel through the rod, hit the

already excited atoms, and - without getting absorbed - force the atoms to release phonons of their own. The phonons multiply and the sound is intensified.

That proves the principle of the saser, but the device itself has tremendous practical limitations. Although with the proper stimulation the same glass rod can amplify a variety of sounds - glass is made up of a jumble of silica molecules with a wide range of bonds, which can absorb and release phonons of many different frequencies - it can amplify just one frequency at a time. (Prieur's group did their test at 340 megahertz, which is inaudible ultrasound.) And so far it can amplify that frequency by only about 50 percent. The problem is that the sound passes through the rod only once, failing to make use of many excited atoms. Prieur and his colleagues are now trying to figure out how to make the sound bounce back and forth inside the rod, just as light bounces inside a laser. "The sound could propagate back and forth forever, and you could get a hundred-decibel increase or more," says Prieur.

Finally, because the saser must be kept so cold, it won't find many applications outside the laboratory. But its potential sensitivity could be of tremendous use there. Astrophysicists, for example, are searching for the exotic dark matter that many theorists claim makes up most of the universe. A dark-matter particle entering a piece of ordinary solid matter might, on rare occasion, hit an atom, make it vibrate, and create a faint sound. If researchers could only build a sensitive enough listening device, they could detect those few phonons. Perhaps, Prieur believes, all the astrophysicists need is an amplifier made of glass.

der. Hospital stays are also minimized with laser surgery, Dixon points out. Of the nearly 10,000 patients a year who undergo laser surgery at the University of Utah, 80 percent go home within hours of the operation.

Even greater advances in laser medicine appear on the horizon, scientists agree, from the removal of life-threatening atherosclerotic plaque from clogged arteries to the development of laser-sensitive dyes that will selectively kill cancer cells.

From the surgeon's scalpel in the operating room to the laser compact discs that play

music with astonishing clarity in the living room, the applications of lasers seem limited only by the imagination of today's scientists and engineers. And the best is yet to come, says MIT's Feld, who predicts that lasers will make an even greater impact in the next 25 years than in the last 25. Declares Feld: "Lasers are such a fundamental invention that they can be considered a landmark of any civilization, along with the wheel and mathematics. When we know about other worlds, and they know about us, the laser will be one measure of their advancement."

Science Glossary

Acarology Branch of Zoology dealing with ticks and mites.

Acoustics The study of sound (or the science of sound).

Acrobatics The art of performing acrobatic feats (gymnastics).

Aerodynamics (i) The branch of mechanics that deals with the motion of air and other gases. (ii) The study of the motion and control of solid bodies like aircraft, missiles, etc. in air.

Aeronautics The science or art of flight.

Aerostatics The branch of statics that deals with gases in equilibrium and with gases and bodies in them.

Aesthetics The philosophy of fine arts.

Aetiology The science of causation.

Agrobiology The science of plant life and plant nutrition.

Agronomics The science of managing land or crops.

Agronomy The science of soil management and production of field crops.

Agrostology The study of grasses.

Alchemy Chemistry in ancient times.

Anatomy The science dealing with the structure of animals, plants or human body.

Anemology The science of wind.

Angiology The science of blood and lymph vessels.

Anthropology The science that deals with the origin and physical and cultural development of mankind.

Arboriculture Cultivation of trees and vegetables.

Archaeology The study of antiquities.

Astrology The ancient art of predicting the course of human destinies with the help of indications deduced from the position and movement of the heavenly bodies.

Astronautics The science of space travel.

Astronomy The study of the heavenly bodies.

Astrophysics The branch of astronomy concerned with the physical nature of heavenly bodies.

Bacteriology The study of bacteria.

Biochemistry The study of chemical processes of living things.

Biometry The application of mathematics to the study of living things.

Bionics The study of functions, characteristics and phenomena observed in the living world and the application of this knowl-

edge to the world of machines.

Bionomics The study of the relation of an organism to its environment.

Bionomy The science of the laws of life.

Biophysics The physics of vital processes (living things).

Botany The study of plants.

Calisthenics The systematic exercises for attaining strength and gracefulness.

Cardiology The science that deals with heart functions and diseases.

Carpology The science of fruits and seeds.

Ceramics The art and technology of making objects from clay etc. (pottery).

Cetology The science of aquatic mammals, especially whales.

Chemistry The study of elements and their laws of combination and behaviour.

Chemotherapy The treatment of disease by using chemical substances.

Choreography The science of dance and composing ballet.

Chorography The science of geographical regions; plant and animal distribution.

Chronobiology The study of duration of life.

Chronology The science of arranging time in periods and ascertaining the dates and historical order of past events.

Conchology The branch of zoology dealing with the shells of molluscs.

Cosmogony The science of the nature of heavenly bodies.

Cosmography The science that describes and maps the main features of the universe.

Cosmology The science of the nature, origin and history of the universe.

Crainology The science that deals with skull

Criminology The study of crime and criminals.

Cryptography The study of cyphers (secret writings).

Crystallography The study of structure, forms and properties of crystals.

Cryogenics The science dealing with the production, control and application of very low temperatures.

Cryptology The science dealing with code and ciphers.

Cytochemistry The branch of cytology dealing with the chemistry of cells.

Cytogenetics The branch of biology dealing with the study of heredity from the point of view of cytology and genetics.

ology The study of cells, especially their formation, structure and functions.

actylography The study of fingerprints for the purpose of identification.

actyliology The technique of communication by signs made with the fingers. It is generally used by the deaf.

endrology The study of trees.

enotology The study of moral responsibilities.

ology The study of the relation of animals and plants to their surroundings, animate and inanimate.

conometrics The application of mathematics in testing economic theories.

conomics The science dealing with the production, distribution and consumption of goods and services.

mbryology The study of development of embryos.

ntomology The study of insects.

pidemiology The branch of medicine dealing with incidence and risks of diseases.

pigraphy The study of inscriptions.

schatology The study of death, destiny.

thnography A branch of anthropology dealing with the scientific description of individual cultures.

ethics Psychological study of moral principles.

thnology A branch of anthropology that deals with the origin, distribution and distinguishing characteristics of the race of mankind.

Ethology The study of animal behaviour.

Etymology The study of origin and history of words.

Eugenics The study of the production of better offspring by the careful selection of parents.

Exobiology A branch of biology that deals with the search for extraterrestrial life, especially intelligent life, outside our solar system. Exobiology is sometimes called xenobiology or astrobiology.

Futurology The study of the future.

Genealogy The study of family ancestries and histories.

Genecology The study of genetical composition of plant population in relation to their habitats.

Genesiology The science of generation.

Genetics The branch of biology dealing with the phenomena of heredity and the laws governing it.

Geobiology The biology of terrestrial life.

Geobotany The branch of botany dealing with all aspects of relations between plants and the earth's surface.

Geochemistry The study of the chemical

composition of the earth's crust and the changes which take place within it.

Geography The science of the earth's surface, physical features, climate, population, etc.

Geology The science that deals with the physical history of the earth.

Geomedicine The branch of medicine dealing with the influence of climate and environmental conditions on health.

Geomorphology The study of the characteristics, origin and development of land forms.

Geophysics The physics of the earth.

Gerontology The study of old age, its phenomena, diseases, etc.

Glottochronology The study of the history of language.

Heliotherapy The sun cure.

Haematology The study of blood.

Helminthology The study of worms, esp. parasitic worms.

Herpetology The study of reptiles and amphibians.

Histology The study of tissues.

Horticulture The cultivation of flowers, fruits, vegetables and ornamental plants.

Hydrodynamics The mathematical study of the forces, energy and pressure of liquid in motion.

Hydrography The science of water measurements of the earth with special reference to their use for navigation.

Hydrology The study of water with reference to its occurrence and properties in the hydrosphere and atmosphere.

Hydrometallurgy The process of extracting metals at ordinary temperature by leaching ore with liquids.

Hypodathy The cure of disease by the internal and external use of water.

Hydroponics The cultivation of plants by placing the roots in nutrient solutions rather than in soil.

Hydrostatics The mathematical study of forces and pressures in liquids.

Hygiene The science of health and its preservation.

Hypnology The study of sleep.

Ichthyology The study of fish.

Iconography Teaching with aid of pictures and models.

Iconology The study of symbolic representations.

Jurisprudence The science of law.

Lexicography The writing or compiling of dictionaries.

Limnology The study of freshwater life.

Lithology The study of the characteristics of rocks.

Mammography Radiography of the mammary glands.

Metallography The study of the crystalline structures of metals and alloys.

Metallurgy The process of extracting metals from their ores.

Meteorology The science of the atmosphere and its phenomena.

Metrology The scientific study of weights and measures.

Microbiology The study of minute living organisms, including bacteria, moulds and pathogenic protozoa.

Molecular biology The study of the structure of the molecules which are of importance in biology.

Morphology The science of organic forms and structures.

Mycology The study of fungi and fungus diseases.

Myology The study of muscles.

Myrmecology The study of ants.

Neurology The study of the nervous system, its functions and its disorders.

Neuropathology The study of diseases of the nervous system.

Nomology The study of law-making or scientific laws.

Nosology The study of classification of diseases

Numerology The study of numbers, study of the date and year of one's birth to determine their influence on one's future life.

Numismatics The study of coins and medals.

Odontography A description of the teeth.

Odontology The scientific study of the teeth.

Oenology The study of wines.

Oncology The study of tumours.

Oneirology The study of dreams.

Ontology The study of nature of existence.

Oology The study of eggs.

Optics The study of nature & properties of light

Ornithology The study of birds.

Orthoepy The study of correct pronunciation.

Orthopaedics The science of prevention, diagnosis and treatment of diseases and abnormalities of musculoskeletal system.

Osteology The study of the bones.

Osteopathology Any disease of bones.

Osteopathy A therapeutic system based upon detecting and correcting faulty structure.

Palaeobotany The study of fossil plants.

Palaeontology The study of fossils.

Palynology The study of fossil pollen (pollen analysis).

Pathology The study of diseases.

Pedagogy The art or method of teaching.

Pedology The study of soil

Penology The study of prisons and treatment of criminals.

Pharyngology The science of the pharynx and its diseases.

Phenology The study of periodicity phenomena of plants.

Philately The collection and study of postage stamps, revenue stamps, etc.

Philology The study of written records, their authenticity, etc.

Phonetics The study of speech, sounds and their production, transmission, reception etc.

Photobiology The branch of biology dealing with the effect of light on organisms.

Phrenology The study of the faculties and qualities of mind from the shape of the skull.

Phthisiology The scientific study of tuberculosis.

Phycology The study of algae.

Physical science The study of natural laws and process other than those peculiar to living matters, as in Physics, Chemistry and Astronomy.

Physics The study of the properties of matter.

Physiography The science of physical geography.

Physiology The study of the functioning of the various organs of living beings.

Phytogeny Origin and growth of plants.

Pomology The science that deals with fruits and fruit growing.

Psychology The study of human and animal behaviour.

Pteridology The study of ferns

Radio Astronomy The study of heavenly bodies by the reception and analysis of the radio frequency electro-magnetic radiations which they emit or reflect.

Radiobiology The branch of biology which deals with the effects of radiations on living organisms.

Radiology The study of X-rays and radioactivity.

Reflexology The study of reflexes or practice of healing through foot massage

Rheology The study of the deformation and flow of matter.

Scatology The study of excrement; obscene language

Seismology The study of earthquakes and the phenomena associated with it.

Selenology The scientific study of moon, its nature, origin, movements, etc.

Sericulture The raising of silk worms for the production of raw silk.

Sociology The study of human society.

Spectroscopy The study of matter and energy by the use of spectroscope.

Spelology The study of caves

Teleology The study of the evidences of design or purpose in nature.

Telepathy Communication between minds by some means other than sensory perception

Therapeutics The science and art of healing

Topography A special description of a part or region.

Toxicology The study of poisons.

Virology The study of viruses.

Xylology The study of the structure of wood.

Zoogeography The study of the distribution of animals on the surface of the globe.

Zoometry The comparative measurement of the parts of animals.

Zoology The study of animal life.

Scientific Instruments

Actinometer A device that measures the intensity of radiation.

Altimeter A special type of aneroid barometer, used in measuring altitudes.

Ammeter An instrument to measure the strength of an electric current.

Anemometer An instrument to measure the velocity and find the direction of the wind.

Aspirator An apparatus for removing liquids from a body cavity.

Evaporimeter (evaporometer) A device that measures the rate of evaporation.

Audiometer An instrument to measure difference in hearing.

Barometer An instrument used for measuring atmospheric pressure.

Bathometer A device that measures the depth of water in the sea.

Beckmann thermometer A device that measures the slight change in temperature.

Binoculars An optical instrument designed for magnified view of distant objects by both eyes simultaneously.

Callipers A device that measures the diameters of wire, tube or rod.

Calorimeter An instrument for measuring quantities of heat.

Cathetometer A device that measures the distance between fluid levels in vertical tubes.

CAT scanner An instrument that creates a three-dimensional image of body tissues by X-ray recordings.

Chronometer A clock that keeps very accurate time as the one that is used to determine longitude at sea.

Clinical Thermometer A thermometer for measuring the temperature of human body.

Clinometer A device that measures the angle of an incline.

Colorimeter An instrument for comparing intensities of colour.

Commutator An instrument to change or reverse the direction of an electric current. In dynamo used to convert alternating current into direct current.

Computer A technical device designed to find instantaneous solutions of huge and com-

plex calculations based on the information already fed.

Crookes radiometer A device that measures the intensity of radiated light.

Cryometer A device that measures the very low temperature.

Cyclometer A device that measures the distance travelled by a wheel.

Defibrillator An apparatus for restoring heart rhythm by electric shock.

Densimeter A device that measures the density.

Densitometer A device that measures the optical density; degree of transparency.

Dilatometer A device that measures the volume expansion of liquid due to temperature.

Dynamo A device for converting mechanical energy into electrical energy.

Dynamometer An instrument for measuring the electrical power.

Ecraseur An instrument for removing tumours by tightening a wire loop.

Electrometer A device that measures the potential difference and charge.

Electroscope An instrument for detecting the presence of electric charge.

Endoscope An instrument for examining hollow organs such as the bowel.

Galvanometer An instrument for measuring electric current.

Gaussmeter A device that measures the magnetic flux, density.

Geiger counter A device that measures the radiation.

Goniometer A device that measures the angles, as of crystals.

Gravimeter A device that measures the gravitational field.

Hydrometer An instrument for measuring the relative density of liquids.

Hydrophone An instrument for measuring sound under water.

Hygrometer An instrument for measuring the relative humidity of the atmosphere.

Hygroscope An instrument to show the changes in atmospheric humidity.

Hypsometer A device that measures the elevation of land.

Interferometer A device that measures the wavelength of light.

Lactometer An instrument for measuring the relative density of milk.

Machmeter A device that measures the speeds at and beyond the speed of sound.

Magnetometer An instrument used to compare the magnetic moments and fields.

Manometer An instrument to measure the pressure of gases.

Mariner's Compass An apparatus for determining direction, graduated to indicate 32

directions. The "N" point on the dial indicates north pole and the "S" point, south pole.

Micrometer An instrument used for accurately measuring small distances or angles.

Microscope An instrument for magnified view of very small objects.

Optometer An instrument that detects the refraction of eye

Otoscope An instrument for examining the eardrum

Periscope An apparatus for viewing objects lying above the eye level of the observer and whose direct vision is obstructed.

Photometer An instrument for comparing the luminous intensity of the sources of light.

Piezometer An instrument for measuring high pressure, compressibility

Planimeter An instrument for measuring the surface area of a plane figure

Plantimeter A mechanical integrating instrument to measure area of a plane surface.

Pluviometer An instrument for measuring rainfall

Pyknometer An instrument used to measure the density and coefficient of expansion of a liquid.

Pyrheliometer An instrument for measuring solar radiations.

Pyrometers Thermometers to measure high temperatures.

Quadrant An instrument for measuring altitudes and angles in navigation and astronomy.

Quartz clock A highly accurate clock used in astronomical observations and other precision work.

Radio Micrometer An instrument for measuring heat radiations.

Rain Gauge An instrument for measuring rainfall.

Refractometer An instrument used to measure the refractive index of a substance.

Resistance Thermometer Used for determining the electrical resistance of conductors.

Salinometer A type of hydrometer used to determine the concentration of salt solutions by measuring their densities.

Scintillation counter A device for ionising radiation

Seismograph An instrument used for recording the intensity and origin of earthquake shocks.

Sextant An instrument used for measurement of angular distances between two objects.

Spectroscope An instrument used for spectrum analysis.

Spectrometer A type of spectroscope so calibrated as to make it suitable for the precise measurement of refractive indices.

Spherometer An instrument used for accu-

ately measuring the curvature of spherical objects.

Spring Balance An instrument used to measure the weight of a body. It is preferred only when quick but approximate determination are to be carried out.

Spygmomanometer An apparatus for measuring blood pressure.

Spygmometer An apparatus for measuring strength of the pulse

Stereoscope An optical device to see two dimensional pictures as having depth and solidity.

Stethoscope A medical instrument for hearing and analysing the sound of heart and lungs.

Stroboscope An instrument used for viewing the objects moving rapidly with a periodic motion and to see them as if they were at rest.

Tangent galvanometer An instrument for measuring the strength of direct current.

Telemeter An apparatus for recording physical events happening at a distance.

Teleprinter A communication medium for automatic sending, receiving and printing of telegraphic messages from distant places.

Telescope An instrument for viewing distant objects as magnified.

Television An instrument used for transmitting the visible moving images by means of wireless waves.

Tenaculum An instrument for lifting and holding blood vessels

Trephine An instrument for removing discs of bone from the skull

Thermometer An instrument to measure the temperature.

Thermoscope An instrument used for measuring the temperature changes (approximately) of the substance by noting the corresponding change in volume.

Thermostat An automatic device for regulating constant temperatures.

Transistor A small device which may be used to amplify currents and perform other functions usually performed by a thermionic valve

Variometer A device for measuring the rate of climb or descent of an aircraft

Vernier An adjustable scale for measuring small sub divisions of scale.

Vinometer A device for measuring alcohol content of wine

Viscometer An instrument for measuring the viscosity, i.e., the property of resistance of fluid to relative motion within itself.

Voltmeter An instrument to measure potential difference between two points.

Xyster A device for scraping bones

Zymometer An instrument for measuring degree of fermentation

PART TWO



WORLD PANORAMA

Nations of the World

World population stood at 5,716.4 m. in 1995 .(UNFPA: 'The State of World Population' 1995). Russia with 17.07 million sq km is the biggest independent state in the world in area while China with 1,221.5 m. people the biggest state in respect of population. Vatican City has the distinction of being the smallest state in respect of area (44 hectares) and population (about 1000 people).

The Biggest States

In Area

State	Area (Sq km)	Location
Russia	17,075,000	Europe-Asia
Canada	9,976,139	N. America
China	9,561,000	Asia
U.S.A.	9,372,614	N. America
Brazil	8,511,965	S. America
Australia	7,682,300	S. Pacific
India	3,287,263	Asia
Argentina	2,776,654	S. America
Kazakhstan	2,717,300	Europe-Asia
Sudan	2,505,813	Africa

In Population

State	Population (in millions)	Location
China	1,221.5	Asia
India	935.7	Asia
USA	263.3	N. America
Indonesia	197.6	Asia
Brazil	161.8	S. America
Russia	147.0	Europe-Asia
Pakistan	140.5	Asia
Japan	125.1	Asia
Bangladesh	120.4	Asia
Nigeria*	111.7	Africa

*Source of Information: UNFPA (1995). The 1991 Census population figure was 88,500,000. There has been considerable uncertainty over the size of Nigerian population.

The Smallest States

In Area

State	Area (sq km)	Location
Vatican City	0.44	Europe
Monaco	1.95	Europe
Nauru	21.30	S. Pacific

Tuvalu	26.00	S. Pacific
San Marino	61.00	Europe
Liechtenstein	160.00	Europe
Marshall Islands	181.00	C. Pacific
St. Kitts-Nevis	269.00	E. Caribbean
Seychelles	308.00	Indian Ocean
Grenada	344.00	W. Indies

In Population

State	Population	Location
Vatican City	1,000	Europe
Nauru	9,400	S. Pacific
Tuvalu	9,500	S. Pacific
Palau	18,000	W. Pacific
San Marino	24,000	Europe
Monaco	31,000	Europe
Liechtenstein	30,000	Europe
St. Kitts-Nevis	42,000	Caribbean
Marshall Islands	50,000	C. Pacific
Andorra	59,000	Europe

Population Sources: UNFPA, World Almanac 1995; Statesman's Yearbook (U.K.) 1995-'96.

Afghanistan

Republic of Afghanistan - (De Afghanistan Jamhuriat); Cap: Kabul; Area:647,497 sq.km; Pop: 20.1 m.; Lang: Pakhto (Pushtu), Dari, Persian; Literacy: 29%; Rel: Islam; Currency: Afghani, \$1=3462; *p.c.i.: \$ 200; President: Burhanuddin Rabbani.

Afghanistan is a land-locked republic in Central Asia known originally as Ariana or Bactria, then as Khorasan (the land of the Rising Sun). Monarchy was overthrown in 1973, and a marxist 'people's republic' was created by Nour Taraki's coup of 1978. In 1986, Lt. Gen. Najibullah became President. Soviet troops, which had occupied the country in 1979, faced resistance from Afghan tribesmen 'Mujahideen' (holy warriors). Soviet troops were withdrawn in 1989. In Feb. 1989, a military council headed by Najibullah was announced. Afghan rebels elected Sighbatullah Mojaddidi as President of an interim government in exile. He handed over power to a Mujahideen leadership council.

The formula on power sharing hammered out by the Mujahideen factions after they captured Kabul in April 1992 failed because o

ternecine fighting. Half the population of Kabul have fled the city because of violence between rival warlords. ICRC estimates 4000 were killed and 21,000 injured in Jan.-June, 94 alone. There are believed to be 40m. landmines in Afghanistan. Fierce fighting continued around Kabul and elsewhere in 1993 and 1994. There were more than 3 m. Afghan refugees in Pakistan and Iran. In January, 1994 the government said Prime Minister Gulbuddin Hekmatyar was no longer a member of the Burhanuddin Rabbani government. Late in 1994 a newly formed Islamic movement 'Taliban' (i.e. 'students of religion') emerged as a new force. In March, '95, they were in control of around a third of the country.

Agriculture remains the mainstay of the economy. Chief crops are wheat, cotton, fruits, nuts and wool. Sheep-rearing is another main occupation. Minerals: coal, salt, natural gas, petroleum, iron and copper. Industries: Textiles, cement, furniture, carpets.

Mission in India: Embassy of Afghanistan, Chantipath, Chanakyapuri, New Delhi-110 021. Tel: 603331; Fax: 6875439.

Bombay: 115, Walkeshwar Rd., 400 006. Tel: 128577.

Albania

Republic of Albania (Republika - e Shqiperise); **Cap:** Tirana; **Area:** 28,748 sq. km; **Pop:** 3.4 m.; **Lang:** Albanian, Greek; **Literacy:** 75%; **Rel:** Islam, Christianity, Atheism; **Currency:** Lek; \$1 = 109, **p.c.i.:** \$ 1,300; **Head of State:** Dr. Sali Berisha; **PM:** Alexander Meksi.

Albania lies on the west coast of the Balkan peninsula in south-east Europe. Albania was first established as an independent state in 1912. Republic was formed in 1920. Albania's former communists were routed in elections in March, 1992, and a non-communist government was elected. There was economic collapse and social unrest. Became Europe's first Muslim state, Dec. 1992.

People are mostly Moslems. Public worship was outlawed in 1957. The right to practise religion was restored in 1990. Liberalization measures included freedom to travel abroad.

More than 40 per cent of the land is farmland producing wheat, maize, sugar beet, cotton and tobacco and supporting a heavy livestock population mainly sheep and goats. The important minerals are coal, oil, chrome, copper and nickel. Industries include textiles, woollen fabrics, leather goods, petrol,



cement, sugar, beer and cigarettes. No representation in India.

Algeria

Democratic and Popular Republic of Algeria (Al-Jumhuriya Al-Jaazairiya ad-Dimuqratiya ash-Shabiya); **Cap:** Algiers; **Area:** 2,381,741 sq. km.; **Pop.** 27.9 m. **Lang:** Arabic, Berber and French; **Literacy:** 52%; **Rel:** Islam; **Currency:** Dinar (DA): \$1 = 42; **p.c.i.:** \$2450; **President:** Liamine Zeroual; **PM:** Mokdad Sifi.

Algeria, formerly a French colony, is an independent republic in north west Africa and extends for 1000 km along the shores of the Mediterranean. The plains lying along the coast are very fertile. The Atlas Mountains reaching to altitudes of some 2500 m split the country into two. Algeria became an independent republic in 1962.

Agricultural products include wheat, barley, potatoes, artichokes, flax and tobacco. Fruits like dates, pomegranates and figs grow in abundance. Wine and olive oil are also produced. Cattle raising, however, is the most important occupation. Important minerals are iron, zinc, mercury, copper, antimony, phosphates and petroleum. Industries: Oil, light industry, food processing.

Mission in India: Embassy of the Republic of Algeria, E-12/4, Vasant Vihar, New Delhi-110 057. Tel: 6883910; Fax: 6882289.

Andorra

Principality of Andorra (Principat d' Andorra); **Cap:** Andorre-la-Vieille; **Area:** 464 sq. km, **Pop:** 59,000. **Lang:** Catalan, Spanish, French; **Literacy:** 99%; **Rel:** Christianity; **Currency:** French franc and Spanish peseta **p.c.i.:** not available; **Head of State:** Co-princes are the President of France and the Bishop of Urgei in Spain. **Chairman, Executive Council:** Marc Forne.

The co-principality of Andorra, founded in

1278, lies in the valleys of Eastern Pyrenees, between France and Spain.

Andorra, autonomous and semi-independent, had no proper constitution and its international status was dubious. In 1993, it got a constitution and became the 184th member of the UN. It is nominally subject to the suzerainty of France and the Bishop of Urgel in Spain. The government is carried on by a council of 28 elected members.

Andorra is an agricultural country, cereals, potatoes and tobacco being the principal crops. Iron, lead, alum, stone and timber are the principal products, though tourism especially skiing, is the main source of income. A free port draws some 10 million tourists a year.

Angola

Republic of Angola (Republica de Angola); **Cap:** Luanda; **Area:** 1,246,699 sq.km; **Pop:** 11.1 m.; **Lang:** Portuguese, Bantu; **Literacy:** 40%; **Rel:** Tribal and Christianity; **Currency:** New Kwanza (AOK): \$1=573,814 Kwanza; **p.c.i.:** \$600; **President:** Jose Eduardo dos Santos; **PM:** Marcolino Moco.

Angola, (formerly Portuguese West Africa), which lies in South West Africa on the Atlantic coast, became an independent state in 1975.

A 16-year Civil War ended in 1991 but fighting between MPLA and UNITA broke out again. In August, '95, rebel (UNITA) leader Jonas Savimbi; accepted the invitation to become a Vice President in a coalition government to be formed after nearly two decades of civil war that devastated the country.

The important food crops are millet, maize, bananas and cassava. The main cash crops are coffee, cotton, oil palm and sisal. Industries comprise textiles, brewing, cement, oil refining and sugar. Angola is famous for its gemstones and produces about one-tenth of the total world supply. The main exports are crude petroleum, coffee, diamonds, iron ore, fish, sisal and timber.

Mission in India: Embassy of the Republic of Angola, C-12 Anand Niketan, New Delhi-110021; Tel. 600055; Fax: 6884839.

Antigua & Barbuda

Cap: St. John's; **Area:** 442 sq km; **Pop:** 80,000; **Lang:** English and Patois; **Literacy:** 90% **Rel:** Christianity; **Currency:** Eastern Caribbean Dollar US \$1=2.69. **p.c.i.:** \$ 4,870; **Governor-General:** Sir Wilfred Ebenezer Jacobs; **PM:** Lester Bird

Antigua and Barbuda, one of the Islands of

British West Indies, comprises three Islands: Antigua, Barbuda and (uninhabited) Redonda. Became independent on Nov. 1, 1981.

The population is of mixed European-Negro origin. The economy is agricultural. Sugar and sea island cotton are the main exports. Tourism is a major source of income. Manufactures include garments, fans, refrigerators and rum.

Argentina

Argentine Republic (Republica Argentina) **Cap:** Buenos Aires; **Area:** 2,766,654 sq.km; **Pop:** 34.6 m.; **Lang:** Spanish, Italian; **Literacy:** 94%; **Rel:** Christianity; **Currency:**

The mines that maim

One legacy of civil war - millions of land mines - still poses a threat to Angolan citizens.

The years of war have left between 10 million and 20 million land mines waiting to explode in many parts of Angola. This is one of the most immediately apparent of the problems facing the country: the average number of casualties from land mine explosions is 150-200 a week, adding to the existing 70,000 amputees. Most of the amputees are without artificial limbs or proper crutches.

The United Nations Angola Humanitarian Coordination Unit has established a special Central Mine Action Office, under which three non-governmental organizations - the Halo Trust of Britain, the Mines Advisory Group, also of Britain, and the Norwegian People's Aid - work together with UN bodies.

Activities include mine clearance, demining training, ordnance disposal and mine awareness campaigns.

According to a report by USAID, this is an area in which overseas aid can be especially effective.

Colin Mitchell, chairman of the Halo Trust, a humanitarian charity that specializes in mine clearance and has operated in Afghanistan, Mozambique, the Trans-Caucasus and elsewhere, was far from despairing. A large amount of preliminary work has been done by his organization in Cuito, Huambo and elsewhere in the Benguela corridor, mostly in reconnaissance and surveys.

"It is an enormous task," he says. "Chronically difficult - but no insuperable."

Peso: \$1=1; **p.c.i.**: \$ 6050; **President**: Carlos Saul Menem.

Argentina, the second largest state in S. America, lies at the tip of South America extending for some 3700 km from Bolivia to Cape Horn. Its maximum width is 1500 km. The highest peak in the Western hemisphere, *Aconcagua*, is in Argentina. Argentina proclaimed its independence in 1816.

Argentina abounds in deposits of coal, lead, copper, zinc, gold, silver, sulphur and oil. Meat packing is the chief industry, with flour milling coming second. Others are chemicals, textiles, machinery, motor vehicles, paper and consumer durables. Agriculture and animal husbandry form important segments of the economy. Chief crops: Grains, maize, grapes, linseed, sugar, tobacco, rice, citrus fruits, livestock products. Argentina is the world's largest source of tannin.

The capital is to be moved to the Patagonia region. Argentina has been in the news in recent years because of severe economic problems, foreign debt and inflation. President Menem won a second term in the May '95 election.

Mission in India: Embassy of the Argentine Republic, B-8/9, Vasant Vihar, Paschimi Marg, New Delhi-110 057. Tel: 671345; Fax: 6886501.

Armenia

Republic of Armenia (Haikakan Hanrapetoutioun); **Cap**: Yerevan. **Area**: 29,800 Sq.km. **Pop**: 3.6 m.; **Lang**: Armenian; **Rel**: Christianity; **Currency**: the dram. \$1=405; **President**: Levon Ter-Petrosyan; **PM**: Grant Bagratian.

A former Soviet republic, Armenia is bounded by Georgia, Azerbaijan, Turkey and Iran. Became independent in Dec., 1991.

Armenia has sought reunification with the Nagorno Karabakh autonomous region of neighbouring Azerbaijan. Soviet troops were sent to quell the ethnic civil war with Azerbaijan in Jan., 1990. Fighting between mostly Christian Armenia and mostly Muslim Azerbaijan escalated in '92 and continued in '93 and '94. An earth quake in Dec., 1988 killed 55,000 and left 500,000 homeless.

A mountainous country with very fertile soil and extensive irrigation.

Important crops: Grains, potatoes, olive, almonds, grapes, cotton, dairy products. Natural resources: Copper, zinc, aluminium, molybdenum, marble, granite, cement. Industry: Chemical, cement, textiles, food industries, carpet-weaving.

Mission in India: Honorary Consulate of the



Republic of Armenia, A/153, New Friends Colony, New Delhi-110 065; Tel: 6836784; Fax: 6847548.

Australia

Commonwealth of Australia; **Cap**: Canberra. **Area**: 7,682,300 sq .km; **Pop**: 18.1 m.; **Lang**: English; **Literacy**: 99%; **Rel**: Christianity; **Currency**: Australian Dollar US\$1 = 1.50; **p.c.i.**: \$ 18,070; **Governor-General**: William George Hayden; **PM**: Paul Keating.

Australia occupies the whole of the island continent of Australia, lying between the Indian and Pacific Oceans and its offshore islands, principally Tasmania to the south east.

It has a unique assortment of flora and fauna not found elsewhere in the world. The number of aborigines living in Australia is about 160,000. About half the aborigines live in cities or towns. They participate at all levels of life of the Australian community. Many aborigines still live in the remote areas of Australia and prefer traditional tribal oriented lifestyles. The boomerang was invented by the aborigines who have been there for more than 40,000 years.

Australia is a multicultural society. Four out of 10 Australians are first or second generation immigrants. One in five of the population is overseas born. In the past most immigrants came from Europe, but now, under Australia's non-discriminatory immigration policy, they come from well over 100 countries. One of the most sparsely populated nations, it is also one of the most highly urbanised with 85 per cent of the population living in cities. Vast areas of the continent receive only very small amounts of rainfall limiting development mainly to the coastal fringes.

Australia is a Federation with power divided broadly between the national government and six state governments. The powers of the Australian Parliament are laid down in a written constitution which came into force on January 1, 1901, when the colonies federated to form the Commonwealth of Australia. The states are New South Wales, Victoria, Queensland, South

Australia, Western Australia and Tasmania.

State Capitals: Sydney, Melbourne, Brisbane, Adelaide, Perth and Hobart.

In March 1986, Queen Elizabeth II signed the Proclamation of the Australia Act 1986, which severed Australia's last remaining constitutional links with Britain. Queen Elizabeth is formally Queen of Australia. The present government is promoting the idea of turning Australia into a republic. The date set by Keating for the change is the year 2001.

During the 20th century Australia has developed into a modern industrial nation built upon the solid foundation of an efficient and productive agricultural system and large reserves of minerals. Australia is now an important producer and exporter of a wide range of agricultural products especially wool, wheat and meat and its mines provide minerals and metals of many types including coal, iron-ore, bauxite, gold, silver, lead, zinc, copper, nickel, oil and natural gas for use by local and overseas industries. Over 3.3 m. tourists visited Australia in 1994.

Australia celebrated its bicentenary in 1988 to mark the 200th anniversary of European settlement. Australia Day is celebrated on Jan. 26.

Australian external territories: Norfolk Island, Coral Sea Islands Territory, Territory of Ashmore and Cartier Islands, Cocos (Keeling) Island, Kiritimati (Christmas Island) and Australian Antarctic Territory, the Heard Island and McDonald Islands.

Mission in India: High Commission of Australia, 1/50-G, Shantipath, Chana-kyapuri, New Delhi-110 021. Tel: 6888223; Fax: 6885199.

Bombay: 16th Floor, Maker Tower, E Block, Colaba-400 025. Tel: 2181071.

Austria

Republic of Austria (Republik Österreich); **Cap:** Vienna; **Area:** 83,853 sq. km; **Pop:** 8.0 m.; **Lang:** German; **Literacy:** 98%; **Rel:** Christianity; **Currency:** Schilling \$1 = 11.59; **p.c.i:** \$23,256; **President:** Dr. Thomas Klestil; **Chancellor:** Dr. Franz Vranitzky.

A republic in South Central Europe since 1918, Austria regained full sovereignty in

1955. Over 65 per cent of the country is mountainous. The Danube is the main river.

Economy depends mainly on mining, manufacturing, trade and services. Main agricultural products: livestock, forest products, grains, sugar beets, potatoes.

Industry: Iron and steel, chemicals, machinery, paper and pulp. Austria has iron ore and oil deposits, lignite, manganese, lead and some copper. Austrian capital houses UN organisations like UNIDO and IAEA and international bodies like OPEC. Tourism is highly developed.

Mission in India: Embassy of Austria, EP-13, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 601238; Fax: 6886929.

Consulate: 96/1, Sarat Bose Road, Calcutta-26. Tel: 47-2795.

210, Dr. D.N. Road, Taj Bldg., Fort, Bombay-400 001. Tel: 752795.

Kothari Building, Nungambakkam High Road, Madras-600 034. Tel: 476674.

Azerbaijan

Azerbaijani Republic (Azerbaijchan Respublikasy); **Cap:** Baku; **Area:** 86,600 sq. km; **Pop:** 7.6 m.; **Lang:** Azeri, Turkish, Russian; **Rel:** Islam; **Currency:** Manat \$1=31.68; **President:** Gaider Aliyev; **PM:** Surat Huseynov.

Azerbaijan, a former Soviet republic, borders on Iran and Turkey. Became independent in Dec., 1991.

In Jan. 90, there were violent disturbances in Baku and on the Armenian border over the enclave of Nagorno-Karabakh. Azerbaijanis are Moslems and Armenians Christians. Inside Azerbaijan is Nagorno-Karabakh, the Armenian-majority region. Inside Armenia is Nakhichevan autonomous republic, which is a part of Azerbaijan.

Agricultural products: Grain, cotton, grapes, fruits, vegetables, tobacco, silk, dairy products.

Natural resources: oil, iron, aluminium, copper, lead, zinc, precious metals, limestone, salt.

Industry: Oil, copper, chemical, building material, food, timber, textiles, fishing.

The Bahamas

Commonwealth of The Bahamas; **Cap:** Nassau; **Area:** 13,939 sq. km; **Pop:** 0.3 m.; **Lang:** English; **Literacy:** 93%; **Rel:** Christianity; **Currency:** Bahamian Dollar, \$1=1; **p.c.i:** \$11,370; **Governor-General:** Clifford Darling; **PM:** Hubert Ingraham.

The *Commonwealth of the Bahamas* is an archipelago lying off the south-east coast of Florida. The Bahamas consists of more than 700 islands

Inventions galore

At what rate are inventions made in Europe? In Switzerland and Germany, over 400 inventions per million people are registered every year. Austria is reported to have registered 300 new inventions per million inhabitants in the year 1995.

and 2000 cays and rocks. Only about 30 of the islands are inhabited. The largest island is *Andros* but *New Providence* is the most populous. The capital *Nassau* is situated on this island. Eighty-five per cent of the population is *Negro*, the rest are *Europeans*.

The Bahamas became internally self-governing in 1964 and fully independent in 1973.

Fishing constitutes the main occupation. Vegetables and fruits are also grown. Industries: Tourism, banking.

Bahrain

State of Bahrain/Dawlat al-Bahrayn; **Cap:** Manama; **Area:** 669 sq. km.; **Pop:** 0.6 m.; **Lang:** Arabic and English; **Literacy:** 77%; **Rel:** Islam; **Currency:** Bahraini Dinar, \$ 1 = 0.38; **p.c.i.:** \$ 9,990; **Amir:** Shaikh Isa bin Sulman Al-Khalifa; **PM:** Shaikh Khalifa bin Sulman Al-Khalifa.

Bahrain, a British protectorate for 90 years, became an independent state on Aug. 15, 1971. It is an Arab state comprising 33 small islands in the Arabian Gulf. Bahrain is the biggest of the islands and has lent its name to the whole archipelago. It is an independent monarchy.

The traditional occupations of cattle breeding, agriculture and fishing are still practised but many modern industries have also come up. Oil accounts for the lion's share of the state revenues.

Agriculture: Fruits and vegetables, alfalfa, dates, poultry.

Industry: Aluminium, ship building & repairs, electronics assembly, building materials. Bahrain is an important international banking centre. The people enjoy a very high standard of living. Education is free upto the secondary level and heavily subsidised with scholarships at higher levels.

Consulate: 5th Floor, Maker Tower, F Cuff Parade Road, Colaba, Bombay-400 005. Tel: 2185856; Fax: 2188817

Bangladesh

(People's Republic of Bangladesh; Gana Prajatantri Bangladesh) **Cap:** Dhaka. **Area:** 148,393 sq. km.; **Pop:** 120.4 m.; **Lang:** Bangla, Chakma, Magh; **Literacy:** 35.5%; **Rel:** Islam, Hinduism, Buddhism and Christian; **Currency:** Taka, US\$ = 39.80; **p.c.i:** \$220. **President:** Abdur Rahman Biswas. **PM:** Begum Khaleda Zia.

Bangladesh is surrounded by India, Myanmar and the Bay of Bengal.

History: A republic in south Asia, Bangladesh was formerly East Pakistan, one of the five



provinces into which Pakistan was divided at its creation, when Britain's former Indian Empire was partitioned in August 1947. East Pakistan and the four western provinces were separated by about 1,600 km of Indian territory. East Pakistan was formed from the former Indian province of East Bengal and the Sylhet district of Assam. Although the East was more populous, government was based in West Pakistan.

From the very inception of its formation, language remained the most problematic area. Same status for Bengali language with Urdu and English was the demand and the movement involving all sections of the people of East Pakistan gave a strike call on 21 Feb, 1952. On that very day, police fired on a students' rally and several students died. Since then the day has been observed as the Language Day (Bhasa Divas).

East Pakistan became an independent entity named Bangladesh on 16 December, 1971, following civil war in which India actively supported the East. Leader of this independence movement, Sheikh Mujibur Rahman became the first Prime Minister.

In January 1975 parliamentary government was replaced by a presidential form of government. Sheikh Mujib became President, assuming absolute power. In February, Bangladesh became a one-party state.

On 15 August, 1975 Sheikh Mujib and his family were assassinated in a coup. Chief of Army Staff, Major-Gen. Ziaur Rahman (Gen. Zia) took over power on 7 November, 1975. In June 1978 the country's first direct presidential election resulted in a victory for Zia, who formed a Council of Advisers. Parliamentary elections followed in February 1979 in which President Zia's Bangladesh Nationalist Party (BNP) won 207 of the 300 directly elective seats in the Jatiya Sangsad.

Political instability recurred, however, when Gen. Zia was assassinated on 30 May 1981 during an attempted military coup. The elder Vice President, Justice Abdus Sattar, took over as acting President but was faced by strikes and demonstrations over the execution of several officers who had been involved in the coup.

On 24 March, 1982 there was a bloodless military coup, by which Lieut. Gen. Ershad became chief martial law administrator. President Sattar was deposed. The Constitution was suspended and parliament ceased to function. Assanuddin Chowdhury was sworn in as civilian president on 27 March. Lieut. Gen. Ershad assumed the presidency on 11 Dec., 1983.

Although the Government's economic policies achieved some success and gained a measure of popular support for Ershad, the all party alliance of MRD-Movement for the Restoration of Democracy - gained momentum

Martial law ended on 10 November, 1986. The Constitution (Seventh Amendment) Act restored the constitution but protected the legality of President Ershad's decrees under martial law.

In Jan. 1986 a National Executive Committee was formed and the National Party launched, composed of government supporters. Gen. Ershad was re-elected President on 15 October, 1986. The National Party won the general election of March 1988.

Gen. Ershad was deposed and arrested after a popular uprising in December 1990. Mr. Shahabuddin Ahmed took over as Acting President. In the general elections held in February 1991 Bangladesh National Party led by Begum Khaleda Zia won 140 seats, Sheikh Hasina Wazed (Awami league) won 95 seats and Jatiya Party lead by Hossain Ershad won 35 seats. Begum Zia was sworn in Prime Minister.

Parliament has one chamber of 300 members directly elected every 5 years by citizens over 18. There are 30 seats reserved for

women members elected by Parliament.
National anthem: Amar Sonar-Bangla, ami tomay bhalobasi (My golden Bengal, I love you), Words by Rabindranath Tagore.

The country is divided into 5 divisions with 64 districts.

Division	Area(sq km)	
Population(1991)		
Barishal	13,297	77,57,334
Chittagong	46,367	2,90,15,222
Dhaka	31,119	3,39,39,848
Khulna	22,274	1,32,43,054
Rajshahi	34,513	2,74,99,727

Economy: The national income of the country in 1992-93 was Tk.986694 million at market price, and the GDP was Tk. 560219 million. The sectoral distribution of GDP was - Agriculture - 30.47%, Industry - 9.70%, Construction - 5.98%, Public Admn. & Defence - 5.19%. The economy has recorded an average annual GDP growth rate of 4% since 1970s. In 1991 the economic liberalization process had begun.

The total export of goods and services accounts Tk. 74198 m. and import Tk. 1,32,756 m. with a deficit in BOT of Tk. 58,558 m. in 1991-92.

Energy and Resources: Electric power is generated and distributed by the Bangladesh Power Development Board and the Rural Electrification Board. Oil supplies have been located in the Bay of Bengal.

India and Bangladesh are working towards agreement on sharing the water of the Ganges. The flow will be monitored daily at the Farakka barrage and two other points.

Minerals include salt, limestone, white clay, glass sand.

Agriculture: Agriculture employs about 80% of the economically active population. Bangladesh produces about 70% of the world production of raw jute which is the principal foreign exchange earner. Production in 1992-93 was 446 thousand million tonnes.

The total area under forests (1992) is 5.2 m. acres.

The state is pre-eminently a fish-producing area and possesses great possibilities for the manufacture of various oils and fish products.

Industry and Trade: Textile mills, sugar factories, match factories, glass works, hosiery factories, a paper mill, jute mills, aluminium works and a cement factory are the major industries. Large-scale industry employs about 7% of the active population.

The main export commodities are jute goods, hide, skins, leather and tea. Principal import are machinery and transport equipment, manufactured goods, minerals, fuels and lubricants.

Education: The compulsory primary educa-

Population of world's 10 largest metropolitan areas

City	1990 (millions)	City	2000 (millions)
Mexico City	20.2	Mexico City	25.6
Tokyo	18.1	Sao Paulo	22.1
Sao Paulo	17.4	Tokyo	19.0
New York	16.2	Shanghai	17.0
Shanghai	13.7	New York	16.8
Los Angeles	11.9	Calcutta	15.7
Calcutta	11.8	Bombay	15.4
Buenos Aires	11.5	Beijing	14.0
Bombay	11.2	Los Angeles	13.9
Seoul	11.0	Jakarta	13.7

tion scheme has been replaced by model primary education.

In 1992-93 there were 50898 primary schools (with 266 students & 4 teachers each on avg.), 11382 secondary schools (401 students, 11 teachers.) and 1031 intermediate and degree colleges.

The 11 government universities are Dhaka, Rajshahi, Chittagong, Jahangirnagar, Shahjalal, Khulna, Engineering University, Agricultural University, Islamic University, and Open University. Also there are 6 private universities: Independent, North-South, International University of Business, Agriculture, & Technology, University of Science & Technology (Chittagong), Women's University, and Darul Islam University. There are 10 teacher-training colleges, 54 primary training institutes and 51 vocational institutes. After a lapse of two decades English is being re-introduced into school and colleges.

Health: In 1992 there were 611 government hospitals, and 280 private hospitals, 4 tuberculosis and 5 infectious disease hospitals. The number of medical colleges runs through 13 and P G Medical institutions 5 with 2 para medical institutions and 8 medical assistance schools. Total registered doctors accounted for 21,749.

Transport: There are some 8231 km of paved and 3937 km of unpaved road and 2332 km of partly paved road. In 1992-93 there were 2,746 km of railways with 590 stations. The railways carried about 25 m. tons of freight and 522 m. passengers. Bangladesh Biman (Bangladesh Airways) has domestic flights from Dhaka and international services to many destinations abroad. In 1992 Bangladesh airways carried 4m. domestic and 6.75m. international passengers. Navigable channels provide 5,000 miles of cheap water routes. There are 3 principal waterways, the Padma, Brahmaputra and Meghna. The Bangladesh Shipping Corporation owns 24 ships.

There were 232700 telephones in 1992. International communications are by satellite. In 1992 there were 350,000 licensed radio receivers and 355308 black & white and 157509 coloured television sets.

Tourism: Tourist attractions include the cities of Dhaka and Chittagong, Cox's Bazar which has the world's longest beach (120 km) on the Bay of Bengal, and Teknaf, at the southernmost point of Bangladesh. Tourist arrivals totalled 110475 in 1992. The majority of visitors were from India, Japan, the United Kingdom and the USA. Indians totalled 35,607. Foreign exchange earnings Tk. 594.4m.

Mission in India: High Commission for the People's Republic of Bangladesh, 56 Mahatma



Gandhi Marg, Lajpat Nagar-III, New Delhi - 110 024. Tel: 6834668; Fax: 68339237.

Deputy High Commission of Bangladesh, 9-Circus Avenue, Calcutta - 700 017. Tel: 475208.

Barbados

Cap: Bridgetown; **Area:** 430 sq km; **Pop:** 0.3 m.; **Lang:** English; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Barbados Dollar (BD) \$1 = BD 2.02; **p.c.i.** : \$ 6,500; **Head of State:** Queen Elizabeth II; **Governor-General:** Dame Nita Barrow; **PM:** Erskine Sandiford.

The island of Barbados is the most easterly of the Caribbean islands, lying about 400 km north east of the mainland of South America. It is included in the Windward Isles. Barbados became fully self-governing within the Commonwealth on Nov. 30, 1966.

Agriculture and tourism dominate the economy of Barbados. Sugar, molasses and rum account for 90 per cent of exports.

The island's economy has become diversified, so reducing the importance of sugar. Services, especially tourism, are now main source of employment.

Industry: Light manufacturing, electronic components, food processing, beverages, rum, beer.

No representation in India.

Belarus

(Republic of Belarus) Respublika Belarus; **Cap:** Minsk; **Area:** 207,600 sq km **Pop:** 10.1 m.; **Lang:** Belorussian, Russian, **Rel:** Christianity **Currency:** Belarus Ruble (Zachik) **Head of State:** Alexander Lukashenko; **PM:** Mikhail Chigir.

A former Soviet republic, Byelorussia (White Russia) is bounded by Poland, Latvia, Lithuania, Russia and the Ukraine. Became independent in Dec., 1991. Renamed Belarus.

Agriculture: Cattle-breeding for meat and dairy produce important. Products: Potatoes, hemp, grain, flax, fodder.

Natural resources: Valuable forest land wooded with oak, elm, maple; peat deposits.

Industry: tip-lorries, machine tools, agricultural machinery, peat, chemical fibre, paper, building materials, glass.

Belgium

Kingdom of Belgium, Koninkrijk Bekgie (Dutch), Royaume de Belgique (French); **Cap:** Brussels; **Area:** 30,521 sq.km; **Pop:** 10.1 m.; **Lang:** Dutch and French and German; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Belgian franc \$1 = F 35.50, **p.c.i.:** \$ 17,300; **Head of State:** King Albert II; **PM:** Jean-Luc Dehaene.

Belgium (in NW Europe on N. Sea) named after the Belgae, people of ancient Gaul who crossed the Rhine about the 6th century B.C., has had a turbulent history. It became an independent monarchy in 1830. During both the world wars it was occupied by Germany but freed itself by the end of those wars. Belgium became a Federal State in February, 1993.

Belgium is the most densely populated country in Europe. Although it is essentially a manufacturing country, agriculture and forestry are also very important. The main crops are oats, rye, wheat, potatoes, barley and sugar beets. Coal is the country's only important mineral. Principal industries are steel and metal products, textiles, glass, fertilizer, sugar, heavy chemicals etc. About 50% of the country's total production is exported. Antwerp is the world's 4th largest port and also the world's biggest diamond-trading centre.

Belgium's Invisible Trade

Belgium and Luxembourg are two countries to which invisible exports matter most to the economies. They were equivalent to more than half of the combined Gross Domestic Product (GDP) in 1993.

Denmark, Austria and The Netherlands came next to Belgium and Luxembourg.

America's invisible exports equalled 4.8% of its GDP.

The worldwide total of service exports, non commercial transfers and income from overseas assets reached \$2.4 trillion in 1994. This is a record.

America earned most from invisible trade in 1993, with exports worth \$ 299 billion, ahead of Japan (\$204b.) and France (\$ 188 b.)

The European Community have their headquarters in Brussels.

Mission in India: Royal Embassy of Belgium 50-N, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 608295; Fax: 6885821.

Consulate: 5/1A, Hungerford St., Calcutta-17. Tel: 476513.

Morena, II M.C. Dahanukar Marg, Cumballa Hills, Bombay-400 025. Tel: 4929202.

Belize

Cap: Belmopan; **Area:** 22,965 sq .km; **Pop:** 2,30,000; **Lang:** English, Spanish, Creole dialects; **Literacy:** 93%; **Rel:** Christianity; **Currency:** Belize Dollar. \$1= 3; **p.c.i.:** \$ 2210; **Governor-General:** Dame Elmira Minita Gordon; **PM:** Manuel Esquivel.

Belize, formerly known as British Honduras, is a Central American republic with the Caribbean Sea to the east. Originally a British colony, it was granted autonomy in 1964 and became independent in 1981. The name Belize was adopted in 1973. The original capital Belize City was laid waste by a hurricane in 1961. The capital was shifted to Belmopan, an inland town, in 1970.

More than half the population is made up of the so-called Creoles or English-speaking Negroes, found mostly in the coastal regions. The indigenous (Red) Indian population consists of Mayans and Kekchis who live mostly in the reservations.

Forest products, especially timber, form a major export item. Sugar, citrus fruits, corn and bananas form the major products. Industries: Sugar, molasses, cigarettes, beer. Wild life includes the curious creature mantee - an amphibian mammal—and several varieties of reptiles.

Mission in India: Honorary consulate of Belize, D-5/17, Vasant vihar, New Delhi-110 057; Tel: 6888457; Fax: 687-7774.

Benin

Republic of Benin, Republique du Benin; **Cap:** Porto Novo; **Area:** 112,622 sq.km.; **Pop:** 5.4 m.; **Lang:** French and Tribal dialects; **Literacy:** 28%; **Rel:** Animism, Islam and Christianity; **Currency:** Franc CFA \$1 =504; **p.c.i.:** \$ 410; **President:** Nicephore Soglo.

The People's Republic of Benin (formerly Dahomey) is located north of the Gulf of Guinea in West Africa. It is one of the smallest and most densely populated states in Africa.

Formerly one of the provinces of French West Africa, Benin became an independent state on

Aug. 1, 1960. The country has been plagued by coups and counter-coups.

The first free presidential elections in 30 years were held in 1991.

Benin's principal products are palm oil, kernels, peanuts, cotton, coffee and tobacco.

Food crops: Cassava, yams, maize, sorghum.

Industry: Few factories. Palm oil-processing, brewing, sugar.

Mission in India: Honorary Consulate General of the Republic of Benin, Weston House, Okhla Industrial Estate, New Delhi-110 020; Tel: 831048; Fax: 6842307.

Bhutan

(Kingdom of Bhutan) Druk-Yul; **Cap:** Thimphu; **Area:** 46,500 sq.km; **Pop:** 1,660,000; **Lang:** Dzongkha, Lhotsam (Nepali), English, Gurung, Assamese; **Literacy:** 35% **Rel:** Buddhism, Hinduism; **Currency:** Ngultrum, fixed at par with the Indian Rupee which is also legal tender, US\$1=31.68 Nu.; **p.c.i:** \$190; **Head of State:** King Jigme Singye Wangchuk.

The Kingdom of Bhutan, 'the land of the thunder dragon' lies in the eastern Himalayas, bordered north by China and on all other sides by India. It has very high mountains, fertile valleys and thick forests.

The first hereditary King of Bhutan was installed on 17 December 1907. An Anglo-Bhutanese Treaty, signed in 1910, placed Bhutan's foreign relations under the supervision of the Government of British India. After India became independent, that treaty was replaced in August 1949 by the Indo-Bhutan Treaty of Friendship, whereby Bhutan agrees to seek the advice of the Government of India with regard to its foreign relations, but remains free to decide whether or not to accept such advice.

King Jigme Dorji Wangchuk, was succeeded in 1972 by the Western-educated 16-year-old Crown Prince, Jigme Singye Wangchuk. The new King stated his wish to maintain the Indo-Bhutan Treaty and to strengthen friendship with India.

Bhutan joined the UN in 1971 and the Non-Aligned Movement in 1973. In 1983 Bhutan became a founder-member of the South Asian Association for Regional Co-operation (SAARC).

Bhutan is a monarchy, without a written constitution. In 1907 the Tongsa Penlop (the governor of the province of Tongsa in central Bhutan), Sir Ugyen Wangchuk, was elected the first hereditary Maharaja of Bhutan. The Bhutanese title is Druk Gyalpo and his successor is now addressed as King of Bhutan. From Oct. 1969 the absolute monarchy was changed to a form of democratic monarchy. The National



Assembly (Tshogdu) was reinstituted in 1953. All Bhutanese over 25 years may be candidates. Ten monastic representatives are elected by the central and regional ecclesiastical bodies, while the remaining members are nominated by the King, and include members of the Council of Ministers (the Cabinet) and the Royal Advisory Council. The Royal Advisory Council (Lodol Tsokde), established in 1965, comprises 10 members. Council of Ministers is known as Lhengye Shungtsog.

National Flag: Diagonally yellow over orange over all, in the centre a white dragon.

National Anthem: 'Druk tsenden koipi gyelknap na' ('In the Thunder Dragon Kingdom'); words by Dasho Thinley Dorje, tune by A. Tongmy.

There are 20 districts. A Nepalese minority makes up 30-35% of the population. Bhutan, by world standards is one of the poorest countries. Its economy is largely a subsistence economy. People are engaged in subsistence farming; and barter is practised. The transition to market economy has changed social life.

Large deposits of limestone, marble, dolomite, graphite, lead, copper, slate, coal, talc, gypsum, beryl, mica, pyrites and tufa have been found.

Chief Crops: Rice, millet, wheat, barley, maize, cardamom, potatoes, oranges, apples. Extensive and valuable forests abound. Livestock includes cattle, yaks, pigs, sheep and goats, and poultry.

Industry & Food industry, cement, etc. Trade with India dominates.

Free education is available, but there are insufficient facilities to accommodate all school age children. Many students receive higher technical training in India.

All Bhutanese nationals are obliged to wear the national costume. Under law, Bhutanese women are treated as equal to men. The degree of freedom enjoyed by them is remarkable.

Tourism: Though Bhutan for long resisted the lure of tourism, it is the principal source of foreign exchange now. The Kingdom was

opened to tourism in the autumn of 1974.

Mission in India: Royal Bhutanese Embassy, Chandragupta Marg, Chanakyapuri, New Delhi - 110 021. Tel. 609217; Fax: 6876710.

Bolivia

(Republic of Bolivia) Republic de Bolivia; **Cap:** La Paz (administrative) and Sucre (judicial); **Area:** 1,098,581 sq.km; **Pop:** 7.4 m.; **Lang:** Spanish, Quechua and Aymara; **Literacy:** 78%; **Rel:** Christianity; **Currency:** The Boliviano \$1 = 4.17; **p.c.i.:** \$ 690; **President:** Gonzalo Sanchez de Lozada.

Bolivia, a South American state, lies astride the Andes.

Originally part of the ancient Inca Empire, Bolivia became independent in 1825. Bolivia has been named after Simon Bolivar, the famous South American fighter for freedom. Bolivia, like most Latin American states, has had a number of coups and counter-coups.

Lake Titicaca on the Peru-Bolivian border is the highest lake in the world (3812 m).

Agriculture, the mainstay of the country, engages 70 per cent of the people. Chief crops: Potatoes, sugar, coffee, corn. Tin mining is the most important industry. Bolivia produces about 30,000 tons of tin, nearly 15 per cent of the world's total output. Antimony and tungsten are the next most important minerals. Other industries: Textiles, food processing, refined petroleum.

Mission in India: Consulate of Bolivia, 20, Loudon St., Calcutta-700 016. Tel: 443283.

Bosnia-Herzegovina

Cap: Sarajevo; **Area:** 51,129 sq km; **Pop:** 3.5 m.; **Lang:** Serbo-Croatian; **Literacy:** 90%; **Rel:** Christianity and Islam; **Currency:** New Yugoslav Dinar (\$1=225); **p.c.i.:** \$ 3590; **President:** Alija Izetbegovic; **PM:** Haris Silajic.

A republic of former Yugoslavia, Bosnia-Herzegovina is traditionally known as the power keg of the Balkans, with its explosive ethnic mix of three groups and its three religions (Muslims, Catholics and Orthodox).

Ethnic breakdown: Muslim Slav-43%; Serbs-31%; Croats-17%; Others-9%.

The country was settled by Slavs in the 7th century. Bosnia was conquered by Turks in 1463. At the Congress of Berlin (1878), the territory was assigned to Austro-Hungarian administration under nominal Turkish suzerainty. Austria-Hungary's outright annexation in 1908 generated international tensions which contributed to the

outbreak of World War I.

Croats and Muslims voted for independence in Oct. 1991. A referendum for independence was passed in Feb, 1992. A 'Serb republic' was formed in the predominantly Serb-populated Bosnian territories. Serbs' opposition to the referendum spurred violent clashes and bombings. In April, independence of the republic was recognised by U.S. and E.C. Fierce fighting continued. Serbs massacred thousands of Bosnian civilians. Three-fourths of Bosnia came under Serb control.

Internationally-sponsored peace talks were held in Geneva and at the U.N. but Serb-Muslim-Croat fighting continued. In March 93, Bosnian Muslims and Croats reached an accord to create a federation. In Aug., negotiations resumed to partition Bosnia. In July an ineffective ceasefire was in force. A peace plan authored by USA, UK, France, Germany and Russia was under consideration. NATO launched a series of massive air raids on Serbian positions and Sarajevo and in Serb-held Bosnian territory in August, '95 after the shelling of Sarajevo market by Serb gunmen.

In Sept., '95, Bosnia's warring sides decided to put an end to the three and a half-year-old war by cutting the nation into two parts: one for the rebel Serbs and the other for Muslims and the Croats.

Agricultural products: Wheat, maize, potatoes, plums, timber, cattle, sheep. Industry: Textiles, timber, rugs, cement, electricity, coal, steel.

Botswana

(Republic of Botswana); **Cap:** Gaborone; **Area:** 581,730 sq. km; **Pop:** 1.5 m.; **Lang:** English and Setswana; **Literacy:** 70%; **Rel:** Tribal and Christianity; **Currency:** Pula. \$1 = 2.69; **p.c.i.:** \$ 2790; **President:** Dr. Quett Ketumile Masire.

The Republic of Botswana - the land of the Batawana tribes - (formerly known as Bechuanaland) is located in Southern Africa. Most of the country is near-desert, with the Kalahari occupying the western part of the country. Botswana became independent in Sept. 1966 and assumed its present name.

Cattle industry is the most important economic activity. Important crops: Sorghum, corn, millet, beans. Beef is the main export. Diamonds, manganese, asbestos, coal, copper and nickel are leading mineral resources.

Brazil

(Federative Republic of Brazil) - Republica Federativa do Brasil; **Cap:** Brasilia; **Area:**

511,965 sq.km; **Pop:** 161.8 m.; **Lang:** Portuguese, English, German, Italian; **Literacy:** 81%; **Rel:** Christianity; **Currency:** Cruzeiro Real \$1=1,076;p.c.i.: \$ 2770; **President:** F. H. Cardoso. Brazil, the largest South American state which also the Western Hemisphere's second largest country and the fifth largest country in the world, lies more or less in the centre of South America. It borders every nation on the continent except Chile and Ecuador. It is a land of dense forests and mighty rivers. The Amazon and the Sao Francisco cover the north of the country.

Discovered in 1500, Brazil was a Portuguese settlement declared a kingdom in 1815. Monarchy was overthrown in 1889 and a republic declared. Armed forces took control in 1964 but civilian government was restored in 1985.

More than half of Brazil's population now live in the cities, which are responsible for generating about 35 per cent of the GNP. Among the most important cities are: *Sao Paulo, Rio de Janeiro, Belo Horizonte, Recife, Salvador and Brasilia*. Brasilia, a showpiece of modern architecture and town planning, was declared the capital on April 21, 1960.

Brazil's main industries are concentrated at Sao Paulo shipbuilding, motor cars, textiles, foodstuffs, metals and chemicals. Brazil is the world's largest producer of coffee, bananas, manioc and sugar cane and the second biggest producer of oranges, maize and cocoa.

The major exports of Brazil are soya beans, sugar, coffee, iron ore, cocoa beans, maize, sisal and tobacco.

Brazil possesses vast deposits of mineral wealth iron, phosphates, uranium, manganese, copper, coal, platinum and gold. Oil is a state monopoly. The wax which is used for phonograph records and insulation is a monopoly product of the state.

In August, 1992, Brazil's foreign debt of \$ 123 billion was the developing world's highest, its inflation rate was close to 250%, the highest in Latin America.

In Oct. '92, Franco took over the functions of President, as Mellor was facing impeachment.

Mission in India: Embassy of the Federative Republic of Brazil, 8, Aurangzeb Road, New Delhi-110 011. Tel: 3017301; Fax:3015086.

Brunei

(Brunei Darussalam) State of Brunei Darussalam Negara Brunei Darussalam; **Cap:** Bander Seri Begawan (formerly called Brunei Town); **Area:** 5,765 sq.km. **Pop:** 0.3 m. **Lang:** Malay, English, Chinese; **Literacy:** 95% among the young; **Rel:** Islam; **Currency:** Brunei



Dollar(or ringgit), \$1= 1.64; p.c.i.: \$ 17,000; **Sultan and PM:** Muda Hssanal Bolkiah Muizzadin Waddaulah.

Negara Brunei Darussalam on the northern side of the island of Borneo lies between two Malaysian territories, Sabah and Sarawak. Brunei Malays, mostly Muslims, form more than half of the population. The Sultanate, once a powerful and independent kingdom, was annexed by Britain who in 1971 granted it full internal autonomy. Became a fully sovereign and independent state on Jan. 1, 1984.

Oil and natural gas are Brunei's most valuable resources. Much of Brunei's oil comes from the offshore Ampa field. Rice is the chief food crop. Also grows bananas, vegetables and cassava. Other crops are coconuts, sago and rubber. Rubber is an export item. The Sultan of Brunei is one of world's richest men.

Mission in India: Brunei Darussalam High Commission, A 42, Vasant Marg, New Delhi-110 057. Tel: 6881545; Fax: 6881808.

Bulgaria

(Republic of Bulgaria) - Republika Bulgaria; **Cap:** Sofia; **Area:** 110,912 sq km; **Pop:** 8.8 m.; **Lang:** Bulgarian, Turkish; **Literacy:** 95%; **Rel:** Christianity, Atheism; **Currency:** Lev. \$1 =66; p.c.i.: \$5300; **President:** Zhelio Zhelev; **PM:** Lyuben Berov.

Situated on the Black Sea in eastern Balkan Peninsula, Bulgaria was founded in 681. Monarchy was abolished and a people's republic was proclaimed in 1946. The country's first free election after four decades of communist rule was held in 1990, and an 11-member Corporate Presidency was elected to power.

Principal products: Grains, tobacco, fruits, vegetables.

Minerals: Coal, iron ore, copper, lead and zinc.

Industry: Crude steel, pig iron, cement, sulphuric acid.

Mission in India: Embassy of the People's Re-

public of Bulgaria, E.P. 16/7, Chandragupta Marg, Chanakyapuri, New Delhi - 110 021. Tel: 607413; Fax: 6876190.

Burkina Faso

Cap: Ouagadougou; **Area:** 274,200 sq km; **Pop:** 10.3 m.; **Lang:** French and Sudanic tribal languages; **Literacy:** 18%; **Rel:** Tribal and Islam; **Currency:** Franc CFA \$1=504; **p.c.i.:** \$ 310; **Head of State:** Capt. Blaise Compaore; **PM:** Youssouf Ouedraogo.

The Republic of Burkina Faso in West Africa is a landlocked state surrounded by Mali, Niger, Benin, Togo, Ghana and Coted' Ivoire.

Formerly a province of French West Africa called *Upper Volta*, the country gained full independence in 1960. Name changed to Burkina Faso in 1984.

It is almost exclusively an agricultural country with 80 per cent of the population dependent on agriculture. Livestock raising is highly developed. Principal crops are sorghum, millet, yams, cotton, rice, peanuts and karite. Industry is limited to local handicrafts and processed agricultural products. The country is heavily dependent on foreign aid. Some 2 million of its citizens live in nearby countries, most of them in Coted' Ivoire.

Mission in India: Consulate General, 186 Sarat Bose Road, Calcutta - 700 029. Tel: 46-1164.

Burundi

(Republic of Burundi)-Republikay' Uburundi; **Cap:** Bujumbura; **Area:** 27,834 sq. km; **Pop:** 6.4 m.; **Lang:** French and Kirundi; **Literacy:** 50%; **Rel:** Tribal and Christianity; **Currency:** Burundi Franc. \$ 1 = BF 241; **p.c.i.:** \$ 210; **Interim President:** Silvester Ntibantunganya; **PM:** Antoine Nduwayo.

The Republic of Burundi is a small state in east central Africa.

Burundi attained independence on July 1, 1962. Prior to independence, it formed part of the Belgian-administered UN Trust Territory of Rwanda-Urundi.

The population consists of *Hutu* or *Bahutu* tribesmen, *Tutsi* or *Watutsi* people and *Twa* or *Batwa pygmies*. One of Africa's poorest and most densely populated states, and scene of one of the continent's worst tribal wars. An unsuccessful Hutu rebellion in 1972-73 left 10,000 Tutsi and 150,000 Hutu dead. In the 1980s, a Tutsi-dominated regime pledged itself to ethnic reconciliation. In the first democratic presidential election in June, 1993, a Hutu was elected. President Cyprien Ntaryamira, along

with Rwandan counterpart, was assassinated in April, 1994. Amnesty International puts the number killed in ethnic violence at over 100,000. Another 700,000 fled to neighbouring countries.

The economy is entirely agricultural, manioc and sweet potato being the important food crops and coffee the major cash crop (87% of exports).

Cambodia

(State of Cambodia); **Cap:** Phnom-Penh; **Area:** 181,035 sq km; **Pop:** 10.3 m.; **Lang:** Khmer, French; **Literacy:** 50%; **Rel:** Theravada Buddhism; **Currency:** Riel. \$1 = 2624; **p.c.i.:** \$200; **Head of state:** Prince Norodom Sihanouk; **President:** Heng Samrin; **Co-Presidents of Council of Ministers:** Prince Norodom Ranariddh and Hun Sen; **President of Constituent Assembly:** Son Sann.

Situated on the Indo-China Peninsula in south-east Asia, the People's Republic of Kampuchea changed its name to the original one Cambodia in May, 1989. For some time-between Oct. 1970 and May 1975 - the country was also known as Khmer Republic.

In May, 1993, the country held multi-party elections, supervised by UN, for a Constituent Assembly. Khmer Rouge boycotted the polls. Funcinpec secured the largest number of seats. The 3 parties set up an interim government, ending the 14-year reign of the Vietnamese-installed Phnom Penh administration. In Sept., 1993, a new constitution was signed, restoring Prince Sihanouk as King of Cambodia. Khmer Rouge was outlawed in July, 1994. They in turn, formed a provisional government. The government is of the view that Khmer Rouge leader Pol Pot could participate in elections due in 1998 if the guerrillas stopped fighting.

Cambodia is an under-developed country with 50 per cent of its land covered by virgin forests. Chief crops: Rice (occupies 80% of the cultivated area), maize, rubber. Cattle rearing and fishing are fairly well-developed. The forests are rich in valuable timber. Minerals: Iron, copper, manganese and gold. Industry: Rice milling, wood and rubber.

Mission in India: Embassy of the State of Cambodia, B-47 Soami Nagar, New Delhi-110017. Tel: 6423782; Fax: 6425363.

Cameroon

(Republic of Cameroon); **Cap:** Yaounde; **Area:** 475,442 sq. km; **Pop:** 13.2 m.; **Lang:** French, English; **Literacy:** 65%; **Rel:** Tribal, Christianity

nd Islam; **Currency:** France CFA. \$ 1 = 504;
p.c.i. \$ 1010; **President:** Paul Biya; **PM:** Simon
 chidi Achu.

Situated between West and Central Africa, Cameroon, originally part of the German colony in West Africa, became a republic in 1960. In 1961, British Cameroon was federated with Cameroon, forming the Federal Republic of Cameroon. In 1984, the country was renamed the Republic of Cameroon.

Cameroon has a central government and two provincial governments—East Cameroon and West Cameroon.

Cameroon is mainly an agricultural country raising cocoa, palm oil, coffee, rubber, groundnuts, bananas and cotton. East Cameroon is industrially developed.

Industry: Aluminium, chemicals, palm, consumer goods, crude oil, cement.

Canada

Cap: Ottawa; **Area:** 9,976,139sq.km; **Pop:** 29.5 m.; **Lang:** English, French; **Literacy:** 99%
Rel: Christianity; **Currency:** Dollar. US \$ 1 = Canadian \$ 1.40; **p.c.i.:** \$ 20,320; **Head of State:** Queen Elizabeth II; **Governor General:** Ramon
 Inatyshyn; **PM:** Jean Chretien.

Canada, the second largest country in the world, occupies all of the northern-most part of N. America except Alaska in the west and the small French islands of St. Pierre & Miquelon. Twenty-seven per cent of the population speak French and the rest English.

Provinces	Capital	Area (sq km)
Alberta	Edmonton	644,390
British Columbia	Victoria	929,730
Manitoba	Winnipeg	548,360
New Brunswick	Fredericton	72,090
Newfoundland	St. John's	371,690
Nova Scotia	Halifax	52,840
Ontario	Toronto	891,190
Prince Edward Island	Charlottetown	5,660
Quebec	Quebec	1,356,790
Saskatchewan	Regina	570,700
Territories		
Yukon Territory	Whitehorse	478,970
Northwest Territories	Yellowknife	3,293,020

Canada is a federation comprising 10 provinces and 2 territories. By the historic 'Canada Act of 1982', Britain transferred constitutional powers to Canada.

The provinces with more than a million population are Ontario (8), Quebec (6), British Columbia (2), Alberta and Manitoba (1).



From a primarily agricultural country famous for logging, fishing and fur, Canada has transformed itself into one of the leading industrial countries of the world. Automobile parts head the export list, followed by wood pulp and timber. Wheat is still a major item of export. Principal products include barley, oats and livestock. Canada's industrial structure has been built up mainly by foreign investments especially from USA.

Canada is today the world's largest producer of asbestos, silver, nickel and zinc. It is rich in many other minerals, iron, copper, uranium, cobalt, sulphur, lead and gold. It has vast reserves of oil and natural gas. Though Canada is only ninth in the world in crude oil production it is Canada's biggest dollar earning mineral. The two principal river systems are the Mackenzie and the St. Lawrence. A referendum on Canada's French-speaking province Quebec's independence from Canada will be held on Oct. 30, 1995.

Mission in India: High Commission of Canada, 7/8 Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 6876500; Fax: 6870031.

Cape Verde

(Republic of Cape Verde)/Republica de Cabo Verde; **Cap:** Praia; **Area:** 4033 sq.km; **Pop:** 0.4 m.; **Lang:** Portuguese, Crioulo; **Literacy:** 37%
Rel: Christianity; **Currency:** Escudo \$1=83;
p.c.i.: \$ 850; **President:** Antonio Mascarenhas
 Monteiro; **PM:** Carlos Veiga.

Cape Verde is an archipelago of 15 islands in the Atlantic 600 km west of Dakar, Senegal. Volcanic in origin, the islands are divided into two groups. Barlavento (windward) and Sotavento (leeward). Most Cape Verdeans are descendants of the first Portuguese colonists who came in 1462 and the African slaves brought in soon after. The islands won independence on July 5, 1975.

Repeated droughts and famines have made Cape Verde poorer. Chief crops are banana, coffee, coconuts, sugarcane, maize, beans.

Fishing is important. Minerals: Salt.
Some 600,000 Cape Verdeans live abroad.

Cen. African Republic

(Republique Centrafricaine); **Cap:** Bangui; **Area:** 622,984 sq.km; **Pop:** 3.3 m.; **Lang:** French and Sangho; **Literacy:** 40%; **Rel:** Christianity and Tribal beliefs; **Currency:** Franc CFA \$ 1 = 504; **p.c.i:** \$440; **President:** Gen.Andre Killingba; **PM:** Enoch Derant Lakoue.

The Central African Republic lies in the heart of equatorial Africa. It became self-governing in 1958, and fully independent in 1960, as a member state of the French Community. In 1966 Col. Jean Bedel Bokasa, Chief of Staff of the Army, ousted President David Dacko and seized control of the government.

Bokasa was made President for life in 1972. In 1976, he set himself up an emperor, after the Napoleonic pattern. In 1979 a popular uprising drove him out. It was Bokasa's own predecessor in office, viz. David Dacko, who overthrew the self-styled Emperor in a bloodless coup on Sept. 20, 1979.

Principal agricultural products are cotton, coffee, groundnuts and tobacco. Cotton leads in exports. Diamonds account for half the country's export earnings. Uranium mining is becoming increasingly important.

Industry: timber, textiles, light manufacturing.

Chad

(Republic of Chad)/Republique du Tchad; **Cap:** N'Djamena; **Area:** 1,284,000 sq.km; **Pop:** 6.4 m.; **Lang:** French, Arabic and over 100 tribal languages; **Literacy:** 30%; **Rel:** Islam, Tribal and Christian; **Currency:** Franc CFA. \$ 1=504; **p.c.i:** \$ 133; **President:** Idriss Deby; **PM:** Delwa Kassire Koumakoya.

The Republic of Chad, a landlocked country in North Central Africa, was a province of French Equatorial Africa. The country gets its name from Lake Chad, which lies on the Western border with Niger and Nigeria. It became independent on August 11, 1960.

The country's economy is entirely rural and based on agriculture and animal husbandry. Cotton and meat are the main exports. Cattle, sheep & camels are raised.

Chile

(Republic of Chile)/Republica de Chile; **Cap:** Santiago; **Area:** 756,626 sq.km; **Pop:** 14.3 m.;

Lang: Spanish; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Peso. \$ 1 = 418; **p.c.i:** \$ 2800; **President:** Eduardo Frei.

The Republic of Chile lies on the western seaboard of South America, occupying the strip of land between Peru and Bolivia in the north to Cape Horn in the south.

Originally a Spanish colony, Chile became independent in 1810. It is the first South American country to elect a Marxist Govt. (1970) which fell in a military coup in 1973.

Though wheat, other cereals, potatoes, beans etc. are cultivated, Chile has to import about one-third of its food. It is one of world's largest producers and a leading exporter of copper. There are important deposits of nitrate, gold, silver, lithium, molybdenum and iron ore. Oil production provides about half the oil required by the country. Exports marine products and fruits.

Industries: Fish processing, textiles, wood products.

Mission in India: Embassy of the Republic of Chile, R/7, Hauz Khas, New Delhi-110 016; Tel: 6850537; Fax: 6850231.

China

(People's Republic of China)/Zhonghua Renmin Gonghe Guo; **Cap:** Beijing (Peking); **Area:** 9,561,000 sq.km; **Pop:** 1221.5 m.; **Lang:** Chinese (Mandarin) and other local languages; **Literacy:** 70%; **Rel:** Buddhism, Confucianism and Taoism (officially atheist); **Currency:** Yuan \$ 1=8.43; **p.c.i:** \$ 380; **Senior Leader:** Deng Xiaoping; **Gen.Secretary of the Communist Party and President:** Jiang Zemin. **PM:** Li Peng.

The most populous country in the world and the third largest in area, China is made up of 23 provinces, 5 autonomous regions and three municipalities-Beijing, Shanghai and Tientsin. It occupies most of the habitable mainland of East Asia.

One of the oldest countries in the world, China became a republic in 1911. The People's Republic of China was proclaimed in Peking on October 1, 1949.

On Oct. 26, 1971 China was admitted a member of the UN, displacing Nationalist China (Taiwan). China's population, the world's largest, is likely, according to some experts, to decline after peaking in the early 21st century thanks to the government's one-child policy.

China is essentially an agricultural country. The main crops are rice, other grains, tea, tobacco, sugarcane, jute, soya, groundnut and hemp. The main forest products are teak and tung oil. Among the principal industries are cotton and woollen mills, iron, leather and

electrical equipments. The chief minerals are coal, manganese, iron ore, gold, copper, lead, zinc, silver, tungsten, mercury, antimony and tin. Petroleum industry is steadily growing.

China is a nuclear power well advanced in space technology. It launched its first earth satellite in April, 1970.

Student uprising in 1989 for political reform and liberalisation was put down by the government.

Mission in India: Embassy of the People's Republic of China, 50-D Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 600328; Fax: 6885486.

Colombia

(Republic of Colombia)/República de Colombia; **Cap:** Bogotá; **Area:** 1,138,400 sq. km; **Pop:** 35.1 m.; **Lang:** Spanish; **Literacy:** 80%; **Rel:** Christianity; **Currency:** Pesos. \$ 1=859.87; **p.c.i.:** \$ 1300; **President:** Ernesto Samper.

The Republic of Colombia, situated in the north west of South America, extends up to the isthmus of Panama. It is the only South American country that borders on both the Atlantic and Pacific oceans. *Bogotá*, the capital founded in 1538, is situated in the Andes, 2621 m above sea level.

Colombia was once a part of the South American Spanish Empire. In 1819, Simon Bolivar defeated decisively the Spanish forces breaking the hold of Spain. Bolivar's plan to unite New Granada with Venezuela and Ecuador in the Greater Colombia Confederation was fulfilled by the Congress of Angostura (1819), lasting until 1830. Colombia is plagued by violence, mainly resulting from drug trafficking and govt's control measures. A state of emergency was imposed in Aug., '95.

Colombia's main produce is coffee, which accounts for 61 per cent of the country's exports. Other products are bananas, fresh flowers, cotton fibre, sugar, rice, tobacco, maize and wheat. The country is the world's leading producer of emeralds and is a substantial producer of platinum and gold. It holds the largest coal reserves in Latin America, rich nickel deposits and natural gas fields.

Industries include textiles, beverages, food products, chemicals and non-metallic minerals.

Mission in India: Embassy of Colombia, 82 D, Malcha Marg, Chanakyapuri, New Delhi-110 021. Tel: 3012771; Fax: 3792485.

The Comoros

(Federal Islamic Republic of the Comoros)/Jumhuriyat al-Qumer al-Itthadiyah-al-Islamiyah;



Cap: Moroni; **Area:** 1862 sq. km; **Pop:** 0.7 m.; **Lang:** Arabic and Comoran; **Literacy:** 15%; **Rel:** Islam and Christianity; **Currency:** Comorian Franc; \$ 1=382; **p.c.i.:** \$ 540; **President:** Said Mohamed Djohar; **PM:** Mohammed Taki Abdoukarim.

The Comoro Islands lie at the northern end of the Mozambique Channel, between Africa and Madagascar. The archipelago consists of 3 islands—*Grande-Comoroe*, *Anjouan* and *Moheli*—and a number of islets and coral reefs. With neighbouring Mayotte, they were administered attached to Madagascar from 1914 to 1947, when the four islands became a French Overseas Territory. In 1974 referenda, the three islands voted for independence while Mayotte voted to remain French. The main islands are volcanic and *Grande-Comoroe*, the largest island, is dominated by Mount Karthala (2361 m), an active volcano. The islands are densely forested.

The population is a mixture of various strains—Arabs, Africans, Malagasys, Persians, Indians, Indonesians and Europeans. African and Arab influences are strongest. A purely European population of around 1500 completes the scene. *Grande-Comoroe* is the most populous island and has as capital and principal town, *Moroni*. Agriculture is the mainstay of the economy. (Vanilla, copra, perfume plants, fruits).

Industry: Perfumes

Congo

(Republic of the Congo)/République du Congo; **Cap:** Brazzaville; **Area:** 342,000 sq km; **Pop:** 2.6 m.; **Lang:** French, Lingala, Congo, Icke; **Literacy:** 57%; **Rel:** Tribal and Christianity; **Currency:** Franc C.A. \$ 1=504; **p.c.i.:** \$ 1070; **President:** Pascal Lissouba; **PM:** Claude Antoine Dcosta.

Formerly part of the French Equatorial Africa, the Republic of Congo in West Central Africa became autonomous within the French Community in 1958 and fully independent in Aug.

1960. In 1969, a new constitution was promulgated.

Agriculture: Palm oil and kernels, coca, coffee, tobacco.

Industry: Processed foods, textiles, cement, metal industries.

Main exports are timber, diamonds, palm oil, crude petroleum, sugar and groundnuts.

No representation in India.

Costa Rica

(Republic of Costa Rica)/Republica de Costa Rica; **Cap:** San Jose; **Area:** 51,100 sq.km; **Pop:** 3.4 m.; **Lang:** Spanish; **Literacy:** 93%; **Rel:** Christianity; **Currency:** Colon \$ 1=164.59. **p.c.i:** \$ 2000; **President:** Jose Maria Figueres.

The Republic of Costa Rica (the Rich Coast) is a Central American state. It lies between Nicaragua and Panama.

For nearly three centuries Costa Rica formed part of the Spanish American dominion. In 1821 it became independent.

The country is mainly agricultural. Coffee is the most important product, accounting for about half the exports. Other crops include banana, sugar, cocoa, cotton. Bananas, cocoa, cattle and, recently, sugar are exported.

Industry: Pharmaceuticals, furniture, aluminium, textiles.

People enjoy a relatively high standard of living.

Consulate: Standard Bldg., 346 Dr. D.N. Road, Bombay-400 001. Tel: 215332.

Cote D' Ivoire (Ivory Coast)

(Republique de la Cote d'Ivoire); **Cap:** Yamoussoukro (official), Abidjan (de facto); **Area:** 322,462 sq.km.; **Pop:** 14.3 m.; **Lang:** French and Tribal; **Literacy:** 45%; **Rel:** Islam, Christianity and folk beliefs; **Currency:** Franc CFA. \$ 1=504.36; **p.c.i:** \$ 800; **President:** Henri Konan Bedie; **PM:** Duncan Kablan.

Cote D'Ivoire in Western Africa is bordered by Mali and Burkina Faso in the north, Ghana in the east, the Gulf of Guinea in the south, and Liberia and Guinea in the west.

The Republic of Ivory Coast, once an overseas territory of France, became independent on August 7, 1960. From 1986, the French version of the name became the only correct title.

Agriculture, forestry and fishing employ 90 per cent of the population. Cote D'Ivoire is the third most important coffee producer in the world and the most important African producer

of timber. Cocoa, sugar, cotton, bananas and pineapples are other important crops.

Important minerals: Diamonds and manganese.

No representation in India.

Croatia

(Republic of Croatia)/Republika Hrvatska; **Cap:** Zagreb; **Area:** 56,538 sq.km; **Pop:** 4.5 m.; **Lang:** Serbo-Croatian; **Literacy:** 90%; **Rel:** Christianity; **Currency:** US\$ 1=5.29 kuna; **p.c.i:** \$ 5,600; **President:** Franjo Tudjman; **PM:** Hryoje Sarinic.

Former Yugoslavia's second largest republic, Croatia in S.E. Europe, has an extensive Adriatic coastline.

Croats migrated to their present territory in the 6th century. Croatia was united with Hungary in 1091 and remained under Hungarian administration until the end of World War-I. In 1918, Croatia became a part of the new Kingdom of Serbs, Croats and Slovenes, which was renamed Yugoslavia in 1929. Croatia then became one of the six 'Socialist Republics' constituting the Yugoslav federation. On June 25, 1991, Croatia declared independence. Serbs rebelled, sparking a 7 month-long civil war. The Krajina and other predominantly Serb areas proclaimed the desire for union with Serbia. UN peace-keeping mission arrived at the beginning of 1992. European Community (EC) recognised Croatia on January 15, 1992. Fighting between ethnic Serbs and Croats continued. A ceasefire with Serb rebels forming a self-declared republic of Krajina was agreed to in March, 1994.

Ethnic breakdown: Croats-75%; Serbs-12%; Others-13%.

Agricultural products: Wheat, potatoes, olives, plums, livestock, timber.

Industry: Electricity, coal, lignite, cement, sugar, steel, plastics, textiles.

Cuba

(Republic of Cuba)/Republica de Cuba; **Cap:** Havana; **Area:** 114,524 sq.km; **Pop:** 11.0 m.; **Lang:** Spanish; **Literacy:** 96%; **Rel:** Christianity and non-religious; **Currency:** Peso. \$ 1=0.76; **p.c.i:** \$ 2644; **President:** Dr. Fidel Castro Ruz; **First VicePresident:** Raul Castro Ruz.

Cuba, the largest island in the Greater Antilles group is known as the Pearl of Antilles. Its neighbours are USA, Mexico, Jamaica and Haiti.

Columbus discovered Cuba in 1492 and Spain ruled it for four centuries. In 1898 Cuba became an independent republic.

In 1959 Dr. Fidel Castro overthrew General

atista, the dictatorial President and took over power. Cuba is the largest producer of sugar in the world. Tobacco is the second largest crop. Cattle, poultry and fishing have become important in recent years. Cuba is rich in nickel deposits. Copper, chromite and manganese are also found.

Industry: Cement, sugar, food-processing, textiles, tobacco.

Mission in India: Embassy of the Republic of Cuba, 4, Munirka Marg, Vasant Vihar, New Delhi-110 057. Tel: 6883849; Fax: 688 3846.

Cyprus

(Republic of Cyprus)/Kypriaki Dimokratia (Greek)/Kibiris Cumhuriyeti (Turkish); **Cap:** Nicosia; **Area:** 9,251 sq.km; **Pop:** 0.7 m.; **Lang:** Greek, Turkish and English; **Literacy:** 96%; **Rel:** Christianity and Islam; **Currency:** Cyprus Pound \$ 1=0.49. **p.c.i :** \$11,121; President: Galfcos Clerides.

The Republic of Cyprus lies in the North Eastern corner of the East Mediterranean basin, at the meeting point of three continents—Europe, Asia and Africa. Cyprus appeared for the first time in the history of civilization in the 7th millennium B.C. Cyprus became independent in 1960. In 1974 it was invaded by Turkey and nearly 40% of its territory is still under Turkish occupation.

The healthy climate and the natural beauty of the island make it an ideal place for the tourists.

Cyprus is mainly an agricultural island. Main agricultural exports are: potatoes, grapes, carrots, fresh vegetables, citrus, milk. Main industrial exports are: readymade clothing, footwear, cement, travel goods, plastic products, water pumps, furniture, cosmetics, etc. Other main exports are minerals, the importance of which has been diminishing over the last few years.

Mission in India: High Commission of the Republic of Cyprus, 106, Jor Bagh, New Delhi-110 003. Tel: 4697503; Fax: 462 8828.

Consulate: Bombay-14, K. Dubash Marg, Bombay-400 023. Tel: 244294.

Czech Republic

Cap: Prague; **Area:** 78,864 sq km; **Pop:** 10.3 m.; **Lang:** Czech; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Czech Crown \$ 1 = 29.43; **p.c.i :** \$ 7,700; **President:** Vaclav Havel; **PM:** Vaclav Klaus.

The Czech Republic and Slovakia became independent states on January 1, 1993, when the Czech and Slovak Federal Republic (Czechoslovakia) was dissolved.



Czechoslovakia, a republic landlocked in Central Europe, was composed of 64% Czechs and 31% Slovaks. The Czechoslovak Socialist Republic was established in January 1969 as a federal state of two nations of equal rights. In 1990, the country changed its name to the Czech and Slovak Federative Republic and dropped 'socialist' to symbolize its departure from the communist past. Disputes between the two regions over post-communist reforms turned the union bitter. In June, 1992 the 74-year old federation's Czech and Slovak regions agreed to part.

The Czech republic is bounded by Germany, Poland, Slovakia and Austria.

Agriculture: Sugarbeet, wheat, potatoes, barley, maize, rye.

Industry: Pig iron, crude steel, rolled steel products, cement, paper, sulphuric acid, synthetic fibres, sugar, beer, armaments, cars.

Minerals: Coal, caolin, uranium.

Mission of India: Embassy of Czech Republic, 50-M, Niti Marg, Chanakyapuri, New Delhi-110 021, Tel: 6110205; Fax: 6886221

Consulates: Marcopia, 5, Deshmukh Marg, Bombay. Tel: 492829.

24B, Park Street, Calcutta-700 071. Tel: 297613.

Denmark

(Kingdom of Denmark)/Kongeriget Danmark; **Cap:** Copenhagen; **Area:** 43,074 sq km; **Pop:** 5.2 m.; **Lang:** Danish; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Krone \$ 1=6.20; **p.c.i :** \$ 20,510; **Head of State:** Queen Margrethe-II; **PM:** Poul Nyrup Rasmussen.

Denmark, the smallest of the Scandinavian countries, is situated in northern Europe between the North Sea and the Baltic Sea. It comprises the peninsula of Jutland, the Islands of Zealand, Funen and Bornholm and 480 smaller islands. Greenland, the world's largest island, and the Faeroe Islands also form part of the Kingdom of Denmark.

Denmark is a constitutional monarchy, the

Queen and the Parliament (Folketing) jointly holding legislative powers.

About 70 per cent of the land is under cultivation. Denmark is one of the largest exporters of dairy products. Fishing forms an important occupation. Denmark is famous for its co-operative institutions. The first co-operative society was established in 1866. Shipbuilding, machinery of different types, textiles, furniture, iron and steel-ware account for a major portion of industry. A 1992 study by Washington-based Population Crisis Committee rated Denmark as the best place to live in.

Mission in India: Royal Danish Embassy, 11-Aurangzeb Rd., New Delhi-110 011. Tel: 3010900; Fax: 301 0900; Fax: 3010961

Consulates: Bombay-L&T House, Narotham Morarjee Marg, Ballard Estate, Bombay. Tel: 2614462.

Madras: 8, Cathedral Road, Madras-600 086. Tel: 473333.

Calcutta: McLeod House, 3, Netaji Subhas Road, Calcutta-700 001. Tel: 287476.

Outlying Territories of Denmark

The Faeroe Islands- Area: 1399 sq.km. **Pop:** 47,663; **Cap:** Torshavn. **CM:** Jogvan Sundstein. The islands, in the North Atlantic, are mountainous and of volcanic origin. The islands have been represented in the Danish Parliament since 1851. They are self-governing in most matters.

Only 2% of the surface is cultivated. Grazing is the mainstay of the economy. Deep sea fishing is the most important sector.

Greenland- Area: 2,175,600 sq.km; **Pop:** 57,000; **Capital:** Gothab. **PM:** L. A. Johansen. The world's largest island, Greenland lies between the North Atlantic and the Polar Sea. Over 80% of the area is ice-capped.

A Danish possession since 1380, Greenland became an integral part of the Danish Kingdom in 1953.

In 1979 home rule was won by Greenland. With this, Greenlandic place names came into

Degrees of Corruption

New Zealand, Denmark and Singapore in that order, are the three least corrupt places in the world to do business in, according to the 1995 Corruption Index published by Berlin-based Transparency International (TI) and the University of Goettingen.

No region of the world can claim any form of moral superiority when it comes to corruption, and that there are deep-seated problems in every part of the world, a statement by TI said. Why is New Zealand the least corrupt? The answer, according to an official spokesman of the country, is: the country's public sector reforms over the last few years and legislative requirements such as the fiscal responsibility act, which he said had created a transparent government.

The index surveyed 41 countries including 12 from Asia. It was based on seven previous polls of international businessmen and financial journalists. The index ranked the countries by averaging the score each obtained in the previous polls.

Of the other Asian countries ranked by the index, only Hong Kong and Japan were ranked among the top 20 least corrupt countries.

Indonesia, China, Thailand, India, the

Philippines and Pakistan were among the last ten, which also included Mexico, Italy, Brazil and Venezuela.

The top 20 least corrupt nations

Country	Score
1. New Zealand	9.55
2. Denmark	9.32
3. Singapore	9.26
4. Finland	9.12
5. Canada	8.87
6. Sweden	8.87
7. Australia	8.80
8. Switzerland	8.76
9. Netherlands	8.69
10. Norway	8.61
11. Ireland	8.57
12. United Kindgom	8.57
13. Germany	8.14
14. Chile	7.94
15. USA	7.79
16. Hongkong	7.12
18. France	7.00
19. Belgium/Lux	6.85
20. Japan	6.72
10 Free of corruption	
0 Total corruption	

cial use. Greenland is now Kalaallit Nunaat. The capital is Nuuk, rather than Godthab. Full internal self-government was attained in Jan., 1981.

Fish is the main product of the island. Greenland is the world's only source of natural graphite, important in making aluminium.

Djibouti

(Republic of Djibouti)/Jumhuriyya Djibouti; **Cap:** Djibouti; **Area:** 21,783 sq.km; **Pop:** 695,000; **Lang:** French, Arabic, Afar, Issa; **Literacy:** 48%; **Rel:** Islam; **Currency:** Djibouti Franc \$1 = 177; **p.c.i:** \$ 1030; **President:** Hassan Gouled Aden; **PM:** Barkal Gourad Hamadou.

Djibouti, first known as French Somaliland and then as the French Territory of Afars and Issas, became independent on June 27, 1977 under the name of Djibouti.

Lying between Ethiopia and Somalia and looking out on the Red sea and the Gulf of Aden, the state is of extreme strategic importance.

The land is economically poor, being mostly volcanic desert with scattered plateaus and highlands. Agriculture is possible only in restricted areas with irrigation facilities. Goats, sheep and camels form the major wealth of the state. Salt is a major product. Huge salt deposits are found in the lakes of Assal and Assal. Trade is almost entirely based on the capital Djibouti.

No representation in India.

Dominica

(Commonwealth of Dominica); **Cap:** Roseau; **Area:** 750 sq km; **Pop:** 88,000; **Lang:** English and French Patois; **Literacy:** 90%; **Rel:** Christianity; **Currency:** East Caribbean Dollar \$1 = \$2.7; **p.c.i:** \$1650; **President:** C.A. Seignoret; **PM:** Mary Eugenia Charles.

Commonwealth of Dominica lies in the Lesser Antilles in Eastern Caribbean. Once a British protectorate, it assumed the status of a British associate State in 1967 and became fully independent on Nov. 3, 1978.

The island is volcanic in origin and largely mountainous with numerous thermal springs. The population includes Negroes, Mulattoes, Carib Indians and Europeans.

Exports include bananas, cocoa, copra and fruits. Tourism is an important industry.

The French franc, the pound sterling and East Caribbean dollar are legal tender.

Mission in India: High Commission for the Commonwealth of Dominica, 48, Friends Colony East, New Delhi-110 065; Tel: 6845695.



Dominican Republic

(Republica Dominicana); **Cap:** Santo Domingo; **Area:** 48,442 sq km; **Pop:** 7.8 m.; **Lang:** Spanish; **Literacy:** 83%; **Rel:** Christianity; **Currency:** Peso Oro. \$1 = 12.95; **p.c.i:** \$ 950; **President:** Dr. Joaquin Balaguer.

The Dominican Republic in the West Indies occupies the eastern two-thirds of Hispaniola, the second largest island of the Greater Antilles. Originally under Spain, the Dominican Republic became independent in 1844.

The state is predominantly agricultural. The most important crops are sugarcane, coffee, cocoa, tobacco and rice.

Industry: Sugar refining, textiles, cement.

Ecuador

(Republic of Ecuador)/Republica del Ecuador; **Cap:** Quito; **Area:** 283,561 sq km; **Pop:** 11.5 m.; **Lang:** Spanish, Quechuan and tribal dialects; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Sucre. \$1 = 1875; **p.c.i:** \$ 1070; **President:** Sixto Duran Ballen.

Ecuador lies on the west coast of South America. *Guayaquil* is the chief seaport and airport. The *Galapagos* islands (the home of huge tortoises) belong to Ecuador. Ecuador, a part of the great Inca Empire, came under Spanish rule in 1533. It became independent in 1830.

Ecuador is the world's largest producer of bananas. Sugarcane, African palm, rice and coffee are grown.

In April, 94, Ecuador and Peru announced final withdrawal of their troops from a disputed border area where they fought a monthlong war.

Industry: Food processing, wood products, textiles, sugar. Silver ore is now the chief mineral product. There are large deposits of copper, gold and zinc. The production of petroleum is increasing. The so called 'Panama' hats made of Toquilla straw are made in Ecuador.

Mission in India closed in 1985. The embassy in Cairo looks after interests in India.

Egypt

(Arab Republic of Egypt)/Jumhuriyah Misr al-Arabiya; **Cap:** Cairo; **Area:** 997,677 sq.km; **Pop:** 62.9 m.; **Lang:** Arabic, English; **Literacy:** 44%; **Rel:** Islam and Christianity; **Currency:** Pound. \$1 = £E 3.32; **p.c.i:** \$700; **President:** Hosni Mubarak; **PM:** Dr.Atef Mohamed Nagulb Sedki.

Egypt, traditionally known as the Gift of the Nile, occupies north east Africa.

Egypt has one of the oldest civilizations in the world, its recorded history going back to more than 5000 B.C. In 1922 Egypt became an independent monarchy and in 1953 a republic.

Islamic militancy is a new threat in Egypt. 'New Jihad', responsible for killing anwar Sadat, has resurfaced. Gama Al Islamiya has carried out about 200 killings. Crushing militant organisations at home and abroad has failed because extremists have Islamic states as their sanctuaries.

The population boom is causing concern. More than half the population is aged below 20.

The main agricultural area is Lower Egypt which covers the delta of the Nile. The chief crops are cotton, onions, wheat, maize, millet, rice, sugarcane and fruits of various kinds.

Industry: Textiles, chemicals, petrochemicals, food processing, cement.

Principal exports are cotton, rice, mineral products, textiles, refrigerators, tyres, cement and electrical instruments.

Mission in India: Embassy of the Arab Republic of Egypt, 1/50 M Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 6114096; Fax: 6885355.

Consulate: Bombay, Maker Tower, 12/B. Tel: 3676422.

El Salvador

Republic of El Salvador)/Republica do El Salvador; **Cap:** San Salvador; **Area:** 21,393 sq.km; **Pop:** 5.8 m.; **Lang:** Spanish; **Literacy:** 75%; **Rel:** Christianity; **Currency:** Colon. \$1 = 8.76; **p.c.i:** \$1040; **President:** Armando Calderon Sol.

El Salvador in Central America became independent of Spain in 1821. It is the smallest and the most densely populated of the Central American States and the only one without an Atlantic coast line.

The country is predominantly agricultural. The principal crop is coffee which provides half the exports. Other products are cotton, maize and sugar. Fisheries are being developed and figure prominently in the export list.

Industry: Food & beverages, textiles, petroleum products.

Mission in India: 186, Mayapuri, Sarat Bose Rd., Calcutta. Tel: 461164.

Equatorial Guinea

(Republic of Equatorial Guinea)/Republica de Guinea Ecuatorial; **Cap:** Malabo; **Area:** 28,051 sq.km; **Pop:** 0.4 m.; **Lang:** Spanish, Fang, Bub and pidgin English; **Literacy:** 55%; **Rel:** Christianity; **Currency:** Franc CFA \$1 = 504; **p.c.i:** 3420; **President, Supreme Military Council:** Brig-Gen. Teodoro Obiang Ngueme Mbasogo; **PM:** Silvestre Siale Bileka.

Equatorial Guinea, formerly Spanish Guinea, comprises the islands of *Fernando Po* (now *Bioko*), *Corcisco*, *Great Elobey*, *Little Elobey*, and *Annoban* and the mainland territory of *Rio Muni* on the west coast of Africa. In 1975, almost all place names were changed by President Macias Nguema. The capital Santa Isabel thus became Malabo. Macias Nguema was ousted by his nephew, Mbasogo on Sept. 29, 1979.

The island of Fernando Po is mostly mountainous. Coffee is cultivated upto 900 m and cocoa upto 600 m. There are also forests of ebony, mahogany and oak. Other products are cocoa, coffee, timber, palm oil and bananas. The country is heavily dependent on foreign aid.

No representation in India.

Eritrea

(State of Eritrea); **Cap:** Asmara; **Area:** 117,600 sq. km; **Pop:** 3.5 m.; **Lang:** Tigrigna and several other local languages; **Rel:** Christianity and Islam; **Currency:** Birr \$1=5; **President:** Issaias Afewerki.

Eritrea, until recently the northern-most province of Ethiopia, is situated on the African shore of the Red Sea. In 1890, it became an Italian colony but Italy lost the colony to British invasion force in 1941. After World War II, a U.N. resolution made Eritrea an autonomous, self-governing region of Ethiopia, apparently against the wishes of most of Eritrea's population. In 1962 Ethiopian emperor Haile Selassie formally annexed Eritrea. Beginning in the mid-60's the province was repeatedly torn by fighting between the Eritrean Liberation Front (ELF) and other groups like Eritrean People's Liberation Front (EPLF) advocating secession from Ethiopia and the Ethiopian army. Africa's longest civil war of 30 years ended in 1993 and on May 24, 1993 Eritrea became an independent nation-Africa's 52nd. It was admitted to the Organisation of

ican Unity and the United Nations. There are nine ethnic groups in Eritrea. Asawa is the chief port. Only 5% of the land is under cultivation.

Agriculture: Sorghum, livestock including oxen and goats. Red Sea fishing.

Minerals: Gold, copper, potash, iron ore.

Exports: Hides, salt, cement, gum arabic.

Estonia

(Republic of Estonia)/Esti Vabariik; **Cap:** Tallinn; **Area:** 45,100 sq.km; **Pop:** 1.5 m.; **Lang:** Estonian; **Rel:** Christianity; **Currency:** Estonian kroon \$1=11.26; **Head of State:** Lennart Meri; **PM:** Andres Tarand.

Estonia seceded from Soviet Union and attained independence in August, 1991, 50 years after the three Baltic states were annexed by Stalin's USSR.

Estonia is bounded west and north by the Baltic, east by Russia and South by Latvia.

Agriculture and dairy farming are the major occupations. Some 22% of the territory is covered by forests, which provide fuel and raw material for industries.

Agricultural products: Grain, potatoes, vegetables.

Natural resources: Shale deposits, timber, oil, phosphorites.

Industry: Furniture, match & pulp, leather, chemicals, agricultural machinery, electric motors.

First ex-Soviet Union country to bring out its own currency 'Kroon' (June, '92).

Mission in India: Honorary Consulate General



of the Republic of Estonia, M-2, Hemkunt Tower, 98 Nehru Place, New Delhi-110019; Tel: 6414575; Fax: 6444642.

Ethiopia

(People's Democratic Republic of Ethiopia)/Ye Etiyop'iya Hezbawi Dimokrasiyawi Republic; **Cap:** Addis Ababa; **Area:** 1,221,900 sq.km; **Pop:** 55.1 m.; **Lang:** Amharic, Galla, Tigrigna and 60 other small languages; **Literacy:** 50%; **Rel:** Christianity and Islam; **Currency:** Birr \$1 = 5.00;p.c.i: \$130; **President:** Dr. Vigashu Gerar; **PM:** Tamirat Layene.

Black Africa's oldest state Ethiopia, formerly known as Abyssinia, is a mountainous country in north-east Africa, with a colourful history. The Ethiopian emperors claimed descent from King Solomon and the famous Queen of Sheba. The last Emperor of Ethiopia Haile Sellasie I was deposed by the marxist armed forces which took over the govt. in 1974. Opposition to this government mounted

A tradition that kills girls

Stiff resistance to female genital mutilation is gathering force in Africa and elsewhere.

It is estimated that 80 million women worldwide have undergone the procedure, which has become a major public health issue. It is practised in one form or another in around 40 countries, mostly in East and West Africa and parts of the Arabian peninsula. As a result of migration from these areas it is now also practised in Europe and North America.

Several countries have enacted laws forbidding female genital mutilation. A 1994 amendment to Ghana's criminal code makes anyone who performs the procedure liable to 'three years' imprisonment. Burkina Faso and Niger have established committees to formu-

late strategies to abolish the practice.

The procedure is usually performed on young girls and adolescents, and sometimes when a woman has just given birth. Because it is generally performed outside the medical system, it can have grave health consequences. It is typically performed without anaesthesia, using unclean instruments. The girl risks immediate death from shock or severe bleeding or death from infection which follows.

Governments have been urged to prohibit female genital mutilation wherever it exists and to give support to efforts among non-governmental organisations to eliminate such practices. Fighting a deep-rooted tradition is going to be a tough job.

in 1991 and Ethiopian leader Mengistu Haile Mariam had to flee the country. A new government consisting of various groups was formed by the Ethiopian Revolutionary Democratic Front, an umbrella group of six rebel armies.

May, 1995 saw the birth of a new Federal Democratic Republic of Ethiopia after four years of transitional rule. The new constitution divides Ethiopia into nine ethnically distinct regions, which have the right to secede through a popular referendum.

The economy is mainly agricultural and pastoral. Coffee export earns 60% of all revenue. Other products are wheat, barley, maize, sugarcane, cotton, oil seeds and livestock.

Industry: Food processing, textiles, cement.

Mission in India: Embassy of Ethiopia, 7/50-G, Satya Marg, Chanakyapuri, New Delhi - 110 021. Tel: 6 119513; Fax: 6875731.

Fiji

(Republic of Fiji); **Cap:** Suva; **Area:** 18,376 sq.km.; **Pop:** 0.8 m.; **Lang:** English, Fijian and Hindi; **Literacy:** 85%; **Rel:** Christianity, Hinduism and Islam; **Currency:** Dollar. \$1=1.53; **p.c.i.:** \$ 1945; **President:** Ratu Sir Kamisere Mara; **PM:** Sitiveni Rabuka.

Fiji consists of about 300 islands in western S. Pacific, lying 1750 km. north of New Zealand. The largest of the islands Viti Levu constituting more than half of the total land area of Fiji islands is the seat of the govern-

ment. Fiji lies on the main route between Australia, New Zealand and North America and is the centre of communications in the South West Pacific.

These islands came under British rule in 1874. From 1879, indentured Indian labour was imported into the islands to work European sugar plantations. Practically all the Indian workers settled permanently in the islands. Their descendants now form 37 per cent of the population. Melanesians, original inhabitants, make up 43 per cent, the rest being made up of Europeans, Chinese and others. On Oct. 10, 1970 Britain granted independence to Fiji.

Fiji is a famous tourist centre. Its main products are agricultural. Sugar and coconuts form 90 per cent of the total exports. Rice and ginger are grown too. Mining is limited. Industries are (sugar refining, light industry and tourism) growing.

In October 1987 military strongman Sitiveni Rabuka declared Fiji a republic and a popularly elected government headed by Dr. Timoci Bavadra, leader of the major Indian ethnic group. A civilian government was restored to power in December.

No representation in India.

Finland

(Republic of Finland)/Suomen Tasavalta; Helsinki; **Area:** 337,032 sq.km.; **Pop:** 5.2 m.; **Lang:** Finnish and Swedish; **Literacy:** 99%.

Rel: Christianity; **Currency:** Markka. 100=5.62; **p.c.i.:** \$ 24,000; **President:** Martti Ahtisaari; **PM:** J. Lipponen.

The Republic of Finland is a Baltic country which once formed part of the Russian Empire. It became independent on Jan. 31, 1917 and a republic in 1919.

Off the southern coast are the Swedish islands, the most populated, autonomous Åland is controlling the straits to the Gulf of Bothnia. Finland has more than 180,000 lakes.

Conifer forests which cover



French commandos blocking the Greenpeace flagship Rainbow Warrior on Sept. 2 '95 as she breaches the 12 mile exclusion zone around Mururoa Atoll

of the land form the base of the economy. Paper and pulp industry is highly developed. Other industries are shipbuilding, metals, machinery, textiles, leather and chemicals. Finland has a fairly big fleet of merchant marine. Chief cultural crops are grains, potatoes and dairy products.

Social Democratic Party came to power in 1995.

Mission in India: Embassy of Finland, E-3, Nyaya Marg, Chanakyapuri, New Delhi - 110 021. Tel: 5258; Fax: 688 6713.

Consulates: Bombay-Bennet, Coleman & Co., D.N. Road. Tel: 2621273.

Calcutta: Calland House, 6th Floor, Chitpoot, 230 A, Acharya Jagdish Chandra Road, Calcutta - 700 020. Tel: 2474757.

Madras: C/o Travancore Rayons Ltd., 762 Mount Road, P.O. Box 2730, Madras - 600 002. 867611.

France

(French Republic)/Republique Francaise; **Cap:** Paris; **Area:** 543,965 sq.km; **Pop:** 58.0 m.; **Lang:** French and regional dialects; **Literacy:** 99%; **Rel:** Christianity. **Currency:** Franc. \$1 = 5.79; **p.c.i.:** 3,300; **President:** Jacques Chirac. **PM:** Alain Juppé.

France, the largest country in western Europe, lies between three big countries—Spain, Germany and Italy. The island of Corsica—the birthplace of Napoleon—forms an integral part of France.

The French Revolution (1789-1793) made France, once a grand monarchy, a republic. It then republican and imperial forms of government followed one after another until the Fifth Republic and the French Community



came into being in 1958 under President Charles de Gaulle.

The country is the largest food producer and exporter in Western Europe. Main crops: Grains, maize, rice, fruits, vegetables, wine, potatoes, livestock and dairy products. Among manufactured products, the most important are chemicals, silk, cotton textiles, automobiles, aircraft, ships, precision instruments, electronic equipment, perfumes and wines. Over the last 20 years urban development and technological progress have changed French people's everyday life profoundly.

France exploded a nuclear device at its test site at Mururoa atoll on Sept. 6, 1995.

Overseas Departments: French Guiana, Guadeloupe, Martinique, Reunion.

Overseas Territories: French Polynesia, French Southern and Antarctic Lands, New Caledonia and dependencies, Wallis and Futuna Islands.

Overseas departments elect representatives to the National Assembly and the administrative organisation of mainland France applies to them. The administrative organization of Overseas territories includes a locally elected government.

Territorial collectivity: St. Pierre and Miquelon; Mayotte.

Mission in India: Embassy of France, 2/50 E, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 6118790; Fax: 6872305.

Consulates: 'Datta Prasad' Bldg., Second Floor, Nowroji Gamadia Cross Road, Bombay-400 026. Tel: 4949808.

23/6, Park Mansions, Calcutta-700 016, Tel: 29-0978.

Hon. Consul, 202 Prestige Point, 16 Haddows Road, Madras-600 006. Tel: 473177.

Rue de la Marine, Pondicherry-605 001.

What killed Napoleon?

Napoleon was poisoned with arsenic during his exile in Saint Helena, a French scholar has contended citing new tests of the emperor's hair. Rene Maury of Montpellier University said that French analyses had found arsenic levels of 6.6 parts per million, rising to a concentration of 39.56 at the tips; normal is 0.8. Tests by the FBI found even higher levels, he said. Maury upset historians last year in a book in which he said Napoleon was slowly poisoned from 1817 by the husband of a mistress. Napoleon is generally believed to have died of stomach cancer in 1821.

Gabon

(Gabonese Republic) Republique Gabonaise; **Cap:** Libreville; **Area:** 267,667; **Pop:** 1.3 m.; **Lang:** French and Bantu dialects; **Literacy:** 65%; **Rel:** Tribal beliefs and Christianity; **Currency:**

Franc CFA. \$1 = 504; **p.c.i.** \$ 4400; **President:** Omar Bongo; **PM:** Casimir Oye Mba.

The Gabon Republic is situated on the western coast of central Africa. Formerly a province of French Equatorial Africa, Gabon attained independence on Aug. 17, 1960.

Most of the country is covered by a dense tropical forest.

Chief crops are cocoa, coffee, rice, peanuts, sugarcane.

The economy, hitherto largely dependent on forestry, is now dominated by mining. The manganese deposit at Moanda in the south is one of the world's richest deposits. Crude oil production is already the fifth highest in Africa. Uranium, gold and iron ore are also mined.

No representation in India.

The Gambia

(Republic of The Gambia); **Cap:** Banjul; **Area:** 11,295 sq.km; **Pop:** 1.1 m.; **Lang:** English and Mandinka, Wolof; **Literacy:** 30%; **Rel:** Islam (90%) and Christianity; **Currency:** Dalasi \$1=9.14; **p.c.i.:** \$235; Head of State: Lt.Yaya Jammeh

The Gambia, the smallest African country, is a narrow strip of land in West Africa, extending inland from the Atlantic Ocean for about 30 miles on either side of the Gambia River and surrounded on three sides by Senegal. Nearly half the inhabitants belong to the Mandingo tribe.

Formerly a British colony and protectorate, the Gambia became an independent state within the Commonwealth on Feb. 18, 1965 and a Republic in April 1970.

There is a treaty (1982) with Senegal to form a confederation of the two countries under the name 'Senegambia', with each country retaining its sovereignty.

Peanuts are the main crop, along with rice and palm kernels. Textiles, food and manufactured goods are significant items of import.

In July, '94, a military coup ousted President Dawda Jawara.

Mission in India: Honorary Consulate General of the Republic of Gambia, Weston House, Okhla Indl.Estate, New Delhi-110 020, Tel: 6847725; Fax: 6842307.

Georgia

(Republic of Georgia)/Sakartvelos Respublika; **Cap:** Tbilisi (Tiflis); **Area:** 69,700 sq.km; **Pop:** 5.5 m.; **Lang:** Georgian, Russian; **Rel:** Christianity; **Currency:** Ruble; **President:** Eduard Shevardnadze, **PM:** Ottar Patsatsia.

Georgia, a former Soviet republic that be-

came independent in Dec., 1991, is bordered by the Black Sea, Turkey, Armenia and Azerbaijan.

Georgia has fine, warm climate and is known for its natural wealth, variety and beauty. It has the largest manganese mines in the world.

Georgia and Russia are locked in argument over the routes for exporting oil from the Caspian basin and beyond. Shevardnadze survived an assassination attempt in August, '95.

Agriculture: Tea, citrus fruits, grapes, grain, vegetables, potatoes, silk, tobacco, bamboo, eucalyptus.

Natural resources: Manganese, coal, bauxite, oil, marble, iron.

Industry: Food processing, tea, brewery, tile, chemical fibres, paper, metallurgy.

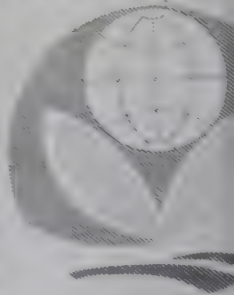
Georgia was admitted to the UN as the 179th member in July, 1992 - the last of the former Soviet republics to join the world organisation. It joined the Commonwealth of Independent States (CIS) early 1994.

Germany

(Federal Republic of Germany) Bundesrepublik Deutschland; **Cap:** Berlin (moving to Berlin in phases); **Area:** 357,020 sq.km.; **Pop:** 81.6 m.; **Lang:** German; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Deutsche Mark; \$1 = 1.71; **p.c.i.:** \$ 22,215; **President:** Roman Herzog; **Chancellor:** Dr.Helmut Kohl.

The Federal Republic of Germany in Central Europe (United Germany of East and West) covers an area of 357,020 sq km made up of low-lying plains, mountain areas, uplands and plains. To the north the country is bounded by the North Sea and the Baltic, to the south by the Alps, Lake Constance and the Rhine, which also forms the border in the south-west. The main rivers are the Rhine, the Danube, the Elbe, the Weser and the Moselle. The highest mountain is the Zugspitze (2,963 m.) in the Alps. The average annual rainfall rises to 1,500 mm.

Germany since 1871 had been a nation made up of numerous states which had a common language and traditions. Since World War II, until 1990, it had been split into two: the Federal Republic of Germany (West Germany) and the German Democratic Republic (East Germany). The merger of the two German



UN Climate Summit emblem, Berlin March-April 1995

ace on Oct. 3, 1990 and the first all-German elections since 1937 were held on Dec., 2, 1990. Of the land 48% is used for agriculture and 25% is wooded. Chief crops: Grains, potatoes, sugar beets.

The Federal Republic's mineral resources include lignite, coal, iron and copper ores and natural gas.

Industry: Steel, ships, vehicles, machinery, chemicals.

Bonn (population 290,000, seat of West German Government) has its origins in a Roman settlement.

Berlin (area 883 sq km; population 3,410,000) is the old capital of imperialist Prussia and the capital of reunified Germany. Hamburg (1.6 m), Munich (1.1m), Cologne (0.9m), Essen (0.6m), Frankfurt (0.6m), Dortmund (0.5m), Düsseldorf (0.5m), Stuttgart (0.5 m), Leipzig (0.5m), Bremen (0.5 m), Duisburg (0.5 m), Dresden (0.5 m) are other populous cities.

Germany is a democratic, parliamentary State with a federal constitution.

The Federal Republic is made up of 16 Lander (states): Baden-Wuttemberg, Bavaria, Bremen, Hamburg, Hesse, Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate, Saarland, Schleswig-Holstein and the Land of Berlin. Five new Lander were added in 1990 - Brandenburg, Mecklenburg, Saxony, Saxony-Anhalt and Thuringia.

The Bundestag (Federal Diet) is the supreme legislative body. With the addition of 144 members of the East German Volkskammer, the total membership rose to 663 in 1990. Members of the Bundestag are directly elected for four years in a combination of plurality and proportional representation. Berlin House of Representatives elect a few, but they have limited voting rights.

The Federal Republic of Germany celebrates 'Constitution Day' on 23 May and National day on October 3, the day of reunification.

Mission in India: Embassy of the Federal Republic of Germany, No.6, Block 50-G, Shantipath, Connaught Place, New Delhi-110 021. Tel: 604861; 6873117.

Consulate: Hoechst House, 10th Floor, Connaught Point, Bombay. Tel: 234422.

Consulate: Hastings Park Road, Calcutta-700 027. Tel: 234422.

Consulate General: 22, CIC Road, PB 6801, New Delhi-110 021. Tel: 711141.

Ghana

(Republic of Ghana) **Cap:** Accra; **Area:** 238,537 sq km; **Pop:** 17.5 m.; **Lang:** English (official



language) and eight major national languages; **Literacy:** 60%; **Rel:** Christianity, Islam and traditional beliefs; **Currency:** Cedi \$1=555; **p.c.i:** \$ 400; **President:** Flt.Lt. Jerry John Rawlings; **Vice President:** Kow Arkaah.

A country tucked between Togo and Cote D'Ivoire on the southern coast of West Africa, Ghana is composed of the former British colony Gold Coast and the British-ruled Togoland.

Independence came on March 6, 1957. Republic status within the Commonwealth was attained on July 1, 1960.

Ghana is primarily an agricultural country which held position as world's leading producer of cocoa for long. Other crops: kolanuts, palm products, bananas, coffee, maize and rubber. Exports timber, gold, diamonds, manganese, bauxite and cocoa.

Industry: Aluminium, light industry.

Mission in India: High Commission of Ghana, 50 N, Satya Marg, Vasant Vihar, New Delhi-110 021. Tel: 6883338; Fax: 6883202

Greece

(Hellenic Republic); Elliniki Dimokratia; **Cap:** Athens; **Area:** 131,990 sq.km; **Pop:** 10.5 m.; **Lang:** Greek; **Literacy:** 92%; **Rel:** Christianity; **Currency:** Drachma \$1= 239; **p.c.i:** \$ 7,730; **President:** Costis Stephanopoulos; **PM:** Andreas Papandreou.

Greece or the Hellenic Republic, on the Mediterranean Sea, occupies the southern end of the Balkan Peninsula in south-east Europe. Greece has a recorded history going back to 66 B.C. Ancient Greece's achievements in art, architecture, science, mathematics, philosophy, drama, literature and democracy were unparalleled. The country reached the peak of its glory in the 5th century B.C.

Politically independent till the 1st century B.C. the Greeks succumbed to Roman might in the latter half of that century. Later they came under the Byzantine and Ottoman empires. In 1830, Greece regained its freedom as a monarchic state. After many vicissitudes of

fortune, monarchy was abolished in 1924, since when Greece is a republic.

Numerous islands comprise about one fifth of total area, of which the largest is Crete.

Greece, though till recently an agricultural country, has now developed many industrial branches. In merchant shipping, Greece owns a surprisingly big tonnage. Tourism is Greece's biggest industry. Others: Textiles, chemicals, metals, wine, food processing, cement.

Chief crops: Wheat, sugar beet, grapes, other fruits, milk, olive oil, cotton.

Mission in India: Embassy of Greece, 16 Sunder Nagar, New Delhi 110 003. Tel: 4617800. Fax: 4601363.

Consulate General: C. G. Stewarts and Lloyds of India Ltd., 41, Chowringhee Road, Calcutta 700 071. Tel: 298198.

Hon. Consul: N-7, Alsa Manor, 72, Harrington Road, Chetput, Madras 600 031. Tel: 869194.

Grenada

Cap: St. George's. Area: 344 sq. km. Pop: 98,000. Lang: English and French/African patois. Literacy: 95%. Rel: Christianity. Currency: Eastern Caribbean Dollar \$1 = \$2 US, p.c.i: \$ 2,800. Gov./Gen: Regional Oswald Palmer. PM: Nicholas Southgate.

Grenada is an island country in the West Indies. It is the most southerly island of the Windward Islands chain and includes Southern Grenadines Islands, the largest of which is Carriacou. Grenada became independent in 1974.

The population is of mixed origin: European, Negro and Carib Indians.

A scene from 'The Iliad'

Greek archaeologists have unearthed a masterpiece of ancient Greek sculpture, a scene from Homer's work previously believed to have been lost. During excavations carried out in the Peloponnese, the work, known as Pasquino, depicts a scene from Homer's epic poem 'The Iliad' in which Menelaus, King of Sparta, in Greek mythology, carries the corpse of Patroclus from the battle after being killed by Hector at Troy. So far, a large part of the work has been uncovered, including the larger than life-size torso of Menelaus, in excellent conditions. The work dates back to about 25 BC and is the most complete of those discovered till date.

Tourism is a growing industry but agriculture dominates the economy, the chief crops being cocoa, nutmegs, bananas, coconuts, sugarcane and citrus fruits.

Industry: Rum, tourism. The chief exports are cocoa, nutmegs and bananas.

Mission in India: Honorary Consul, Grenada, 12, Sunder Nagar, New Delhi 110 003. Tel: 4624512. Fax: 332-8307.

Guatemala

(Republic of Guatemala) República de Guatemala. Cap: Guatemala City. Area: 103,600 sq. km. Pop: 10.6 m. Lang: Spanish and dialects. Literacy: 48%. Rel: Christianity. Currency: Quetzal \$1 = 5.35 p.c.i: \$ 1,900. President: Ramiro de Leon Carpio.

Guatemala, a republic, is the fourth largest and the third largest of the five central American states and has the largest population. Fifty per cent of the population is of Indian (K'ekchi) extraction, 45 per cent Ladino, mixed European and Indian parentage. Indians are the descendants of the pre-Columbian Maya civilization which was wiped out by the Spanish conquistadors.

After remaining as a Spanish colony for about three centuries (1524 - 1821), Guatemala became a republic in 1839. Guatemalan claims to British Honduras (Belize) led to rupture of diplomatic relations with Britain in 1963.

The soil is very fertile. Agriculture is the most important occupation. The principal crops are coffee. Other important export commodities are cotton, gum, sugar, maize, tobacco and beef.

Industry: Prepared foods, textiles, construction materials, tobacco, chemicals.

No representation in India.

Guinea

(Republic of Guinea) République de Guinée. Cap: Conakry. Area: 245,857 sq. km. Lang: French and 8 national languages. Literacy: 35%. Rel: Islam and tribal. Currency: Guinean franc CFA \$1 = 809.47 p.c.i: \$ 430. President: Lansana Conté.

Guinea is a former French overseas territory on the Atlantic coast of West Africa.

Under the constitution of the Republic, Guinea voted for secession and claimed itself an independent republic on September 2, 1958.

Main crops are casava, plantain,

Caribbean and a narrow southern outlet to the Pacific.

Originally a Spanish colony, Honduras became independent in 1821. The country has gone through a series of dictatorships, military juntas, coups and counter-coups.

The chief crop is bananas which constitute 65 per cent of the country's exports. Coffee, cotton, maize and tobacco are also grown. Timber is abundant and cattle raising is a major occupation.

Industry: Textiles, wood products, cigars, beer, cement.

No representation in India.

Hungary

(Republic of Hungary) Magyar Koztarsasag; **Cap:** Budapest; **Area:** 93,033 sq.km; **Pop:** 10.1 m.; **Lang:** Hungarian (Magyar); **Literacy:** 98%; **Rel:** Christianity; **Currency:** Forint \$1=86.32; **p.c.i:** \$ 2780; **President:** Arpad Goncz, **PM:** Gyula Horn.

Hungary is situated in East Central Europe. The eastern half of Hungary is mainly a great fertile plain, 'the Great Plain'. The west and the north are hilly.

Hungary had a stormy history being successively overrun by Huns, Magyars, Turks, Hungarians and Austrians. Hungary became an independent republic in 1918 and the Hungarian Socialist Republic in 1919. In 1990, Hungary embraced democracy and market economy. The last Soviet troops left Hungary in June, 1991.

In the 1994 election, Hungarian socialist party won 209 out of 386 seats.

Although an agricultural country in the past, since the Second World War industry has come to account for more than half of its total economy. Hungary exports engineering products, machine tools, motor vehicles and electrical and electronic goods. Chief imports are iron ore, coal, crude oil and consumer goods. More than 97 per cent of agricultural land is collectivised. Vineyards occupy around 186,000 hectares.

Other crops: Grains, vegetables, fruits.

Mission in India: Embassy of the Republic of Hungary, 2/50 M, Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 611-4737; Fax: 688-6742.

Hungarian Trade Office, N-94 Panchsheel Park, New Delhi-110017. Tel: 6214962; Fax: 6214965.

Iceland

(Republic of Iceland) Lyoveldio Island; **Cap:** Reykjavik; **Area:** 102,846 sq.km; **Pop:** 0.3 m.;

Lang: Icelandic; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Krona \$1=64.85; **p.c.i:** \$16,200; **President:** Vigdis Finnbogadottir; **PM:** David Oddsson.

Iceland is an island close to the Arctic Circle in the North Atlantic. The Norwegian Sea is on the eastern side of Iceland. The warm Gulf Stream makes the winters mild.

During the short cool summers, there is perpetual daylight for many weeks, making it an *island of the Midnight Sun*. The island has many geysers and hot springs. Iceland has over 200 volcanoes, many of them still active.

The people of Iceland are the descendants of the dare-devil Vikings of Norway, the first of whom settled in Iceland in A.D. 874 and who are reputed to have first discovered Greenland (A.D. 982) and North America (A.D. 1000). After having been independent till the 13th century it became part of Norway, and then passed under Danish rule. In 1941 the Althing (Parliament) voted for complete independence and a republic was formed on June 17, 1944.

Much of the land in Iceland is uncultivated. Potatoes, turnips and hay are the major crops. Fishing industry is highly developed. Exports Marine products and aluminium.

Mission in India: Embassy of Iceland, D-35 Pamposh Enclave, New Delhi. Tel: 3321122.

Consulates: Consulate General, 'Speedbird House', 41/2 M-Block, Connaught Circus, New Delhi-110 001. Tel: 3321122; Fax: 3321275.

38 Western India House, Sir P.M. Road Bombay-400 038; Tel: 2871931.

3-1, Sivaganga Road, Madras; Tel: 477946 478803.

India

(Republic of India) **Cap:** New Delhi; **Area:** 3,287,263 sq.km.; **Pop:** 935.7 m.; **Lang:** Hindi (official), English (18 officially recognised languages); **Literacy:** 52.11%; **Rel:** Hinduism, Islam, Christianity, Sikhism, Jainism etc; **Currency:** Rupees, US \$1 = 31; **p.c.i:** \$ 39; **President:** Dr.Sankar Dayal Sharma; **P:** P.V.Narasimha Rao.

For details see **Part-IV India**

Indonesia

(Republic of Indonesia) Republik Indodone **Cap:** Jakarta; **Area:** 1,904,569 sq.km; **Pop:** 19 m.; **Lang:** Bahasa Indonesian, Dutch, English, Javanese and other Austronesian languages; **Literacy:** 85%; **Rel:** Islam, Christianity, Hinduism, Buddhism; **Currency:** Rupiah. \$1=2000; **p.c.i:** \$ 645; **President and PM:** Gen.Ra

Suharto. Vice President: Gen. Try Sutrisno. Formerly the Dutch East Indies, the Republic of Indonesia is an archipelago state consisting of about 13,500 (6000 inhabited) islands extending some 5150 km. along the Equator in the Indian and Pacific Oceans.

The islands were made an integral part of the Netherlands Kingdom in 1922. During world war II, Indonesia was under Japanese military occupation. On August 17, 1945, Indonesia proclaimed independence from the Dutch. The Netherlands transferred sovereignty to Indonesia.

The largest islands of the archipelago are Sumatra, Java, Kalimantan (Indonesian Borneo), Sulawesi and Irian Java.

The Japanese army occupied Indonesia from 1942 after the surrender of the Dutch army till 1945. The Indonesian people proclaimed their independence on August 17, 1945. After a war of independence, the Netherlands transferred sovereignty to Indonesia on December 27, 1949. Gen. Suharto, head of the army who was named President in 1968, was reelected for a sixth consecutive five-year term in 1993. The military retains a predominant political role.

One of the world's richest countries in natural resources, Indonesia has vast supplies of tin, and fairly big deposits of bauxite, copper, nickel, gold and silver. Agriculture is the main occupation of the people. Crops include rice, tobacco, coffee, rubber, casava, maize, pepper, palm, coconut, palm oil, tea and sugarcane. Forest products are a major source of foreign exchange. Food processing, textiles and light industry have developed. With a foreign debt in excess of \$100 b., Indonesia is one of the largest debtor countries of the world.

Mission in India: Embassy of the Republic of Indonesia, 50-A, Chanakyapuri, New Delhi-110 021. Tel: 6118642; Fax: 31-82079 KBRI IN
Consulates: 19 Altamount Road, Cumballa Hills, Bombay; Tel: 368678.

Rajkamal Bhavan, 128 Rashbehari Ave., Cuttack-700 029. Tel: 762297.

5 North Leith Castle Road, San Thome, Madras-600 028.

Iran

(Islamic Republic of Iran) Jomhori-e-Islami-e-Iran; **Cap:** Teheran; **Area:** 1,648,000 sq. km; **Pop:** 63 m.; **Lang:** Persian (Farsi), Turk, Kurdish, Arabic; **Literacy:** 54%; **Rel:** Islam; **Currency:** Rial. \$1=1749; **p.c.i.:** \$ 2320; **President:** Ali Akbar Hashemi Rafsanjani.

Iran, formerly Persia, lies between Caspian Sea and the Persian Gulf and consists of a central



Plateau surrounded by mountains. A popular revolution of Islamic character swept the long-ruling Shah Mohammed Reza Pahlavi from power and installed a strict clerical leadership under Ayatollah Ruhollah Khomeini, spiritual leader of the Shia Muslim community. An Islamic Republic was proclaimed on April 1, 1979.

Iran is a country of great antiquity, celebrated alike for its culture and military valour.

A major earthquake which struck northern Iran in June, 1990 killed 45,000, injured 100,000 and left 400,000 homeless.

Agriculture supports 75% of the people. The chief products are wheat, barley, rice, fruits, wool and sugar beets. Iran is one of the biggest oil-producing regions in the Middle East. Emeralds and other gems are found in Khorassan and Kerman. Persian carpets, made on handlooms are famous.

Other industry: Textiles, cement, processed foods, steel and copper fabrication.

Mission in India: Embassy of the Islamic Republic of Iran, 5, Barakhamba Road, New Delhi-110 001. Tel: 3329600; Fax: 3325493.

Consulate: 4-47, Swapna Lok, Jamna Dass Road, Bombay, Tel: 3630073.

Iraq

(Republic of Iraq) al Jumhoriya al 'Iraqia; **Cap:** Baghdad; **Area:** 438,446 sq. km; **Pop:** 20.4 m.; **Lang:** Arabic (official) and Kurdish; **Literacy:** 60%; **Rel:** Islam; **Currency:** Iraqi Dinar. \$1=0.6; **p.c.i.:** \$ 2400; **President & PM:** Saddam Hussein Takriti.

Iraq in the Middle East, is the modern name for Mesopotamia (Meso-middle, Potamia-rivers), the land lying between the two great rivers, Euphrates and Tigris.

Iraq is one of the most ancient countries of the world and has produced a culture—the Mesopotamian Civilization – which has influenced European and Asian civilizations.

An international crisis was sparked when Iraq overran Kuwait in Aug., 1990. A US-led coalition

beat Iraq in Feb, 1991. An estimate puts casualties at 85,000.

Three quarters of the population depend on agriculture for their living. Chief products: Wheat, barley, rice, dates (largest exporter), cotton, sugarcane, livestock. Petroleum is the most important sector of the economy. Iraq occupies the fifth place among oil-producing countries of the world. Industrialisation is on with oil revenues.

Mission in India: Embassy of the Republic of Iraq, 169-171, Jor Bagh, New Delhi-110 003. Tel: 4618011; Fax: 4631547.

Consulate General: Panorama 203, Walkeshwar Road, Bombay-400 006. Tel: 3633887, 3678927.

Ireland

(Republic of Ireland) Eire; **Cap:** Dublin; **Area:** 70,282 sq.km; **Pop:** 3.6 m.; **Lang:** Irish and English; **Literacy:** 99%; **Rel:** Christianity; **Currency:** (punt) Irish Pound. \$1 = 0.62; **p.c.i:** \$ 11,200; **President:** Mrs. Mary Robinson; **PM:** Bertie Ahern.

Ireland or Eire, the Emerald Isle, is an island in the N. Atlantic lying west of Great Britain.

The independent state of Ireland consists of only 26 counties out of the 32 that make up the whole island. The 6 remaining counties form the area known as Northern Ireland which is directly administered by the United Kingdom.

Ireland emerges in history with the coming of St. Patrick in A.D. 432 and the spread of Christianity. An invasion led by Norman barons during the 12th century led to a period of almost eight centuries of British rule in Ireland. In 1921 Great Britain recognised Ireland as a more or less independent unit within the Commonwealth and the country became known as the Irish Free State. In 1932 the Fianna Fail party under Eamon de Valera came to power and gradually removed the last vestiges of allegiance to the British Crown. In 1937 a new constitution was adopted which made Ireland effectively a republic. In 1949 Ireland formally declared itself a Republic and ceased to be a member of the Commonwealth. In 1973 the country joined the EEC.

Ireland had formerly a mainly agricultural economy. Chief crops: Grains, potatoes, sugar beets, vegetables, fruits. In recent decades industrial output has expanded rapidly due to increased foreign investment.

Industry: Food processing, metals, textiles, chemicals, sewing machinery, tourism. Exports make up 50% of GNP, the main items being dairy products, food and beverages, machinery and live animals.

Mission in India: Embassy of Ireland, 13 Jor

Bagh, New Delhi-110 003. Tel: 4617435; Fax: 4697053.

Consulate: Royal Bombay Yacht Club Chambers, Apollo Bunder, Bombay-400 039. Tel: 2872859.

Israel

(State of Israel) Medinat Israel; **Cap:** Jerusalem; **Area:** 20,772 sq.km; **Pop:** 5.6 m.; **Lang:** Hebrew (official) and Arabic; **Literacy:** 92% (Jewish); 70% (Arab); **Rel:** Judaism and Islam; **Currency:** Shekel. \$1 = 2.97; **p.c.i:** \$ 12,500; **President:** Ezer Weizman; **PM:** Yitzhak Rabin.

A Republic in the Middle East (West Asia). Israel is surrounded on three sides by Arab countries.

The Republic occupies a minor portion of the ancient Palestine.

On November 29, 1947, the UN partitioned Palestine between the Jews and the Arabs. A new Zionist state called Israel was proclaimed in the Jewish area of Palestine on May 15, 1948.

Neighbouring Arab States invaded Israel. At the ceasefire in Jan. 1949, Israel had increased its territory by one-third. There have been conflicts with Egypt in the 1956 Suez crisis; the 1967 'Six-Day War' which left Israel in possession of the Gaza Strip, the West Bank (of the River Jordan) and the Sinai Peninsula. Negotiations between Israel and Egypt began in 1978 (Camp David, USA). A peace treaty was signed in March 1979. Israel withdrew from Sinai by April 1982.

On Aug. 30, 1993, limited Palestinian autonomy was approved by Israel, in a step toward ending 26 years of military control over occupied territories. Israel was to withdraw from Gaza Strip and Jericho. On Sept. 13, the historic accord between PLO and Israel was signed in Washington. The country has immigrants from over 80 nations.

Israel has developed both agriculture and industry in the little land allotted to it with considerable expertise and efficiency. They have literally made the deserts bloom. Kibbutz (collective cultivation), irrigation schemes and reclamation of desert-land formed the main feature of agricultural development. Citrus fruits are the main exports. Wine-making is an intensive industry. In diamond-cutting, Israel comes next only to Belgium. Other industries are textiles, electronics, machinery, processed foods, chemicals. The Valley of Jordan and Dead Sea yield rock salt, sulphur and potash.

Mission in India: Embassy of Israel, 3, Angzeb Road, New Delhi-110 011; Fax: 301 42

Consulate General of Israel, 50G, Deshmarg, Bombay - 400039. Tel: 3862793.



THE WORLD IN MAPS

The World ♦ North America

South America ♦ Africa

Europe ♦ Asia

Middle East ♦ Australia

Flags of Nations

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THE WORLD

Capitals



NORTH AMERICA

- Capitals.....●
- International
Boundaries.....---
- Canals.....---

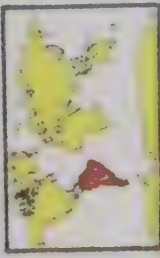
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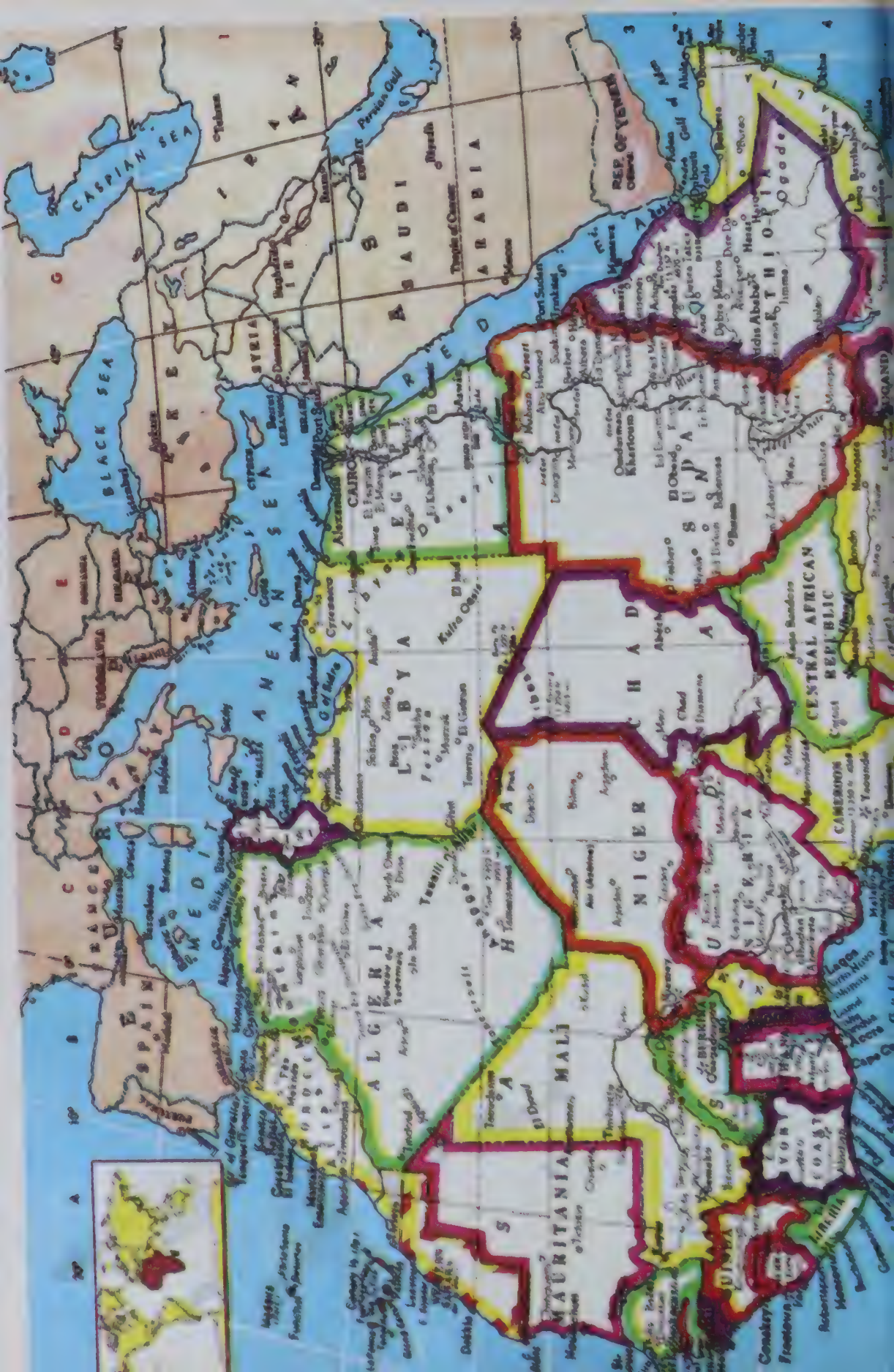


SOUTH AMERICA

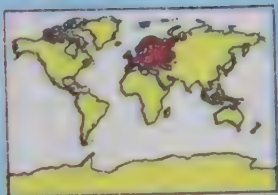
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EUROPE

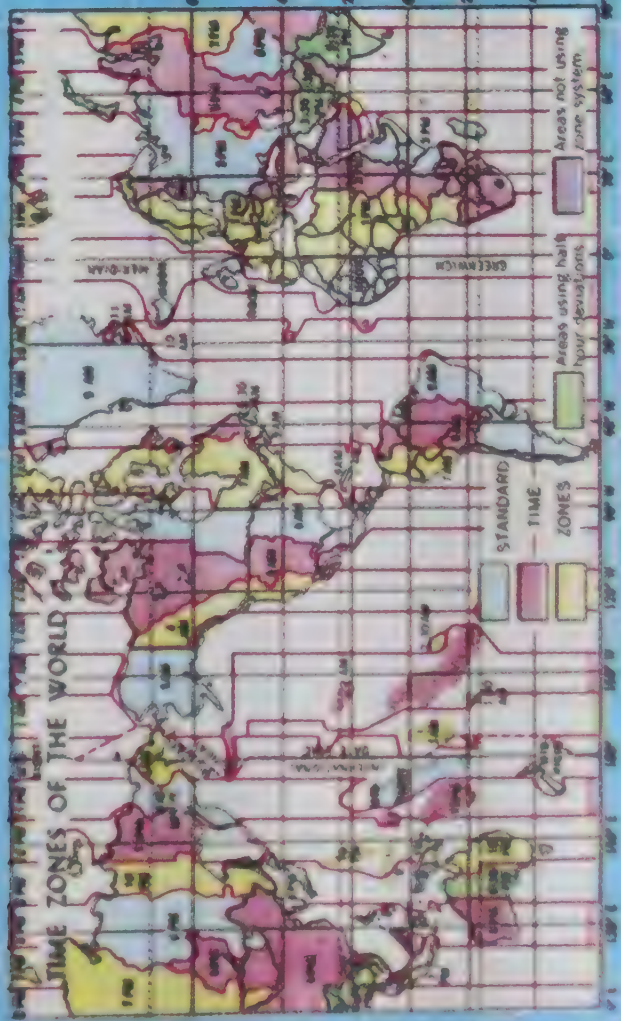
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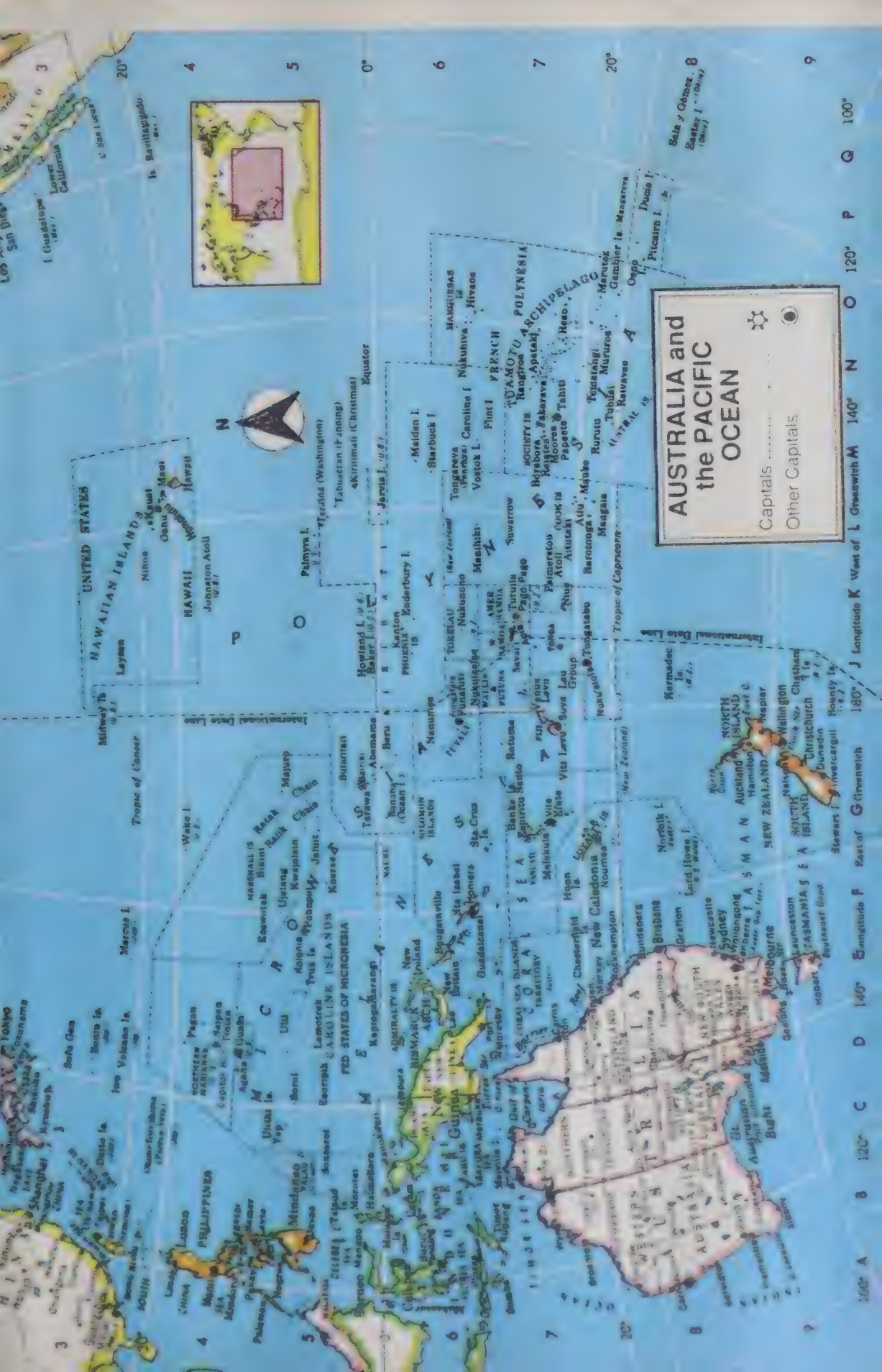


ASIA

- Capitals 
- Canals 
- International Boundaries 



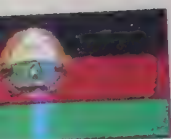




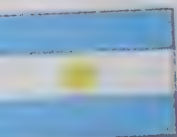
AUSTRALIA and the PACIFIC OCEAN

Capitals 
Other Capitals 

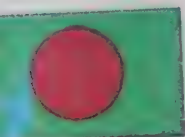
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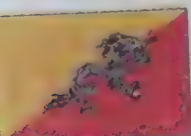
AFGHANISTAN



ARGENTINA



BANGLADESH



BHUTAN



BULGARIA



CANADA



CHINA



COTE D'IVOIRE



DIJIBOUTI



EL SALVADOR



ALBANIA



AUSTRALIA



BARBADOS



BOLIVIA



BURKINA FASO



CAPE VERDE



COLOMBIA



CUBA



DOMINICA



EQUATORIAL GUINEA



ALGERIA



AUSTRIA



BELGIUM



BOTSWANA



BURUNDI



CENTRAL AFRICAN
REPUBLIC



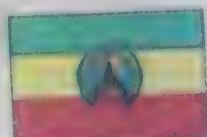
COMOROS



CYPRUS



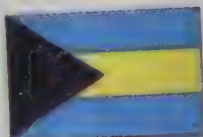
DOMINICAN REPUBLIC



ETHIOPIA



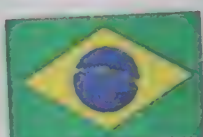
ANGOLA



THE BAHAMAS



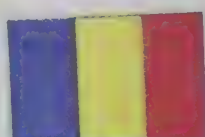
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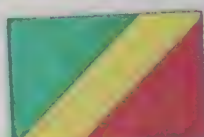
BRAZIL



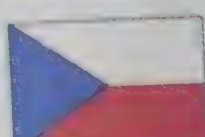
CAMBODIA



CHAD



CONGO



CZECHOSLOVAKIA



ECUADOR



FJI



ANTIGUA
AND BARBUDA



BAHRAIN



BENIN



BRUNEI DARUSSALAM



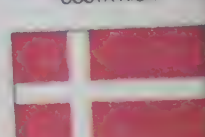
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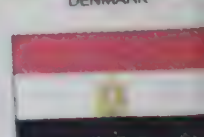
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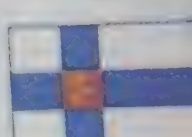
COSTA RICA



DENMARK



EGYPT



FINLAND





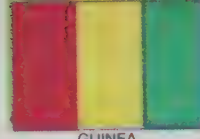
GREECE



GRENADA



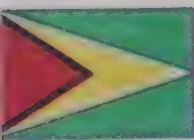
GUATEMALA



GUINEA



GUINEA-BISSAU



GUYANA



HAITI



HONDURAS



HUNGARY



ICELAND



INDIA



INDONESIA



IRAN



IRAQ



IRELAND



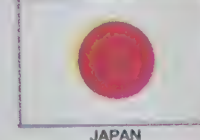
ISRAEL



ITALY



JAMAICA



JAPAN



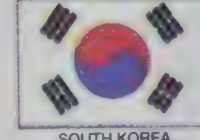
JORDAN



KENYA



NORTH KOREA



SOUTH KOREA



KUWAIT



LAOS



LEBANON



LESOTHO



LIBERIA



SENEGAL



LIECHTENSTEIN



LUXEMBOURG



MADAGASCAR



MALAWI



MALAYSIA



MALDIVES



MALI



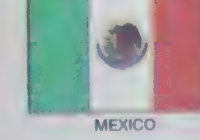
MALTA



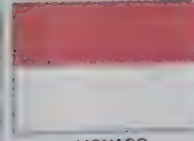
MAURITANIA



MAURITIUS



MEXICO



MONACO



MONGOLIA



MOROCCO



MOZAMBIQUE



MYANMAR (BURMA)



NAMIBIA



NEPAL



NETHERLANDS



NEW ZEALAND



NICARAGUA



NIGER



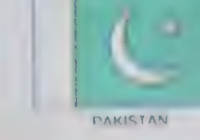
NIGERIA



NORWAY



OMAN



PAKISTAN



PALESTINE

PAPUA NEW GUINEA

PARAGUAY

PERU

PHILIPPINES

POLAND

PORTUGAL

QATAR

ROMANIA

RUSSIA

RWANDA

ST. KITTS AND NEVIS

SAINT LUCIA

ST. VINCENT AND THE GRENADINES

SAN MARINO

SAO TOME AND PRINCEPE

SAUDI ARABIA

SENEGAL

SEYCHELLES

SIERRA LEONE

SINGAPORE

SOLOMON ISLANDS

SOMALIA

SOUTH AFRICA

SPAIN

SRI LANKA

SUDAN

SURINAME

SWAZILAND

SWEDEN

SWITZERLAND

SYRIA

TAIWAN

TANZANIA

THAILAND

TOGO

TONGA

TRINIDAD AND TOBAGO

TUNISIA

TURKEY

UGANDA

UNITED ARAB EMIRATES

UNITED KINGDOM

UNITED STATES

URUGUAY

VANUATU

VATICAN CITY

VENEZUELA

VIETNAM

WESTERN SAMOA

Italy

(Italian Republic) **Repubblica Italiana**; **Cap:** Rome; **Area:** 301,253 sq.km.; **Pop:** 57.2 m.; **Lang:** Italian; **Literacy:** 97%; **Rel:** Christianity; **Currency:** Lira \$1=1202; **p.c.i:** \$ 16,830; **President:** Oscar Luigi Scalforo; **PM:** Lamberto Dini.

The Italian Republic occupies the long peninsular area in Europe shaped like a boot extending from the Alps into the Mediterranean Sea. The islands of Sicily (off the toe of the boot), Sardinia, Elba and Capri in the Mediterranean belong to Italy.

Mount Etna, an active volcano, rises to 3,274 m. Italy's largest northern lakes are Garda, Maggiore and Como. The main river is the Po.

Italy, once the headquarters of the great Roman Empire, disintegrated into many petty states during the latter Middle Ages. Modern Italy began to develop when King Victor Emmanuel II of Savioa became ruler.

The Vatican was recognised as an independent state on February 11, 1929. On April 28, 1945 Benito Mussolini, the Fascist dictator, was put to death. Consequent on a referendum on June 2, 1946, Italy voted for a Republic. The king laid down his kingship.

Since World War II, Italy has revolutionised agricultural production. The chief crops are grapes, wheat, sugarbeet, fruits and vegetables. Italy is among the highly industrialised countries of the world. Its main products are steel, machinery, electrical, mechanical and electronic gadgets, automobiles, chemicals, textiles and shoes. Italy has a big merchant marine fleet with a gross tonnage of over 11 million, and air fleet with the capacity of over 12 billion passengers/km and over 1 billion tons/km.

The Eternal City by 2000

An ambitious programme to spruce up Rome by the year 2000 is being launched for an estimated 30 million pilgrims arriving there for the holy year designated by the Pope to mark two millennia of Christianity.

The Eternal City will have a stunningly new look then. Restoring Rome's ancient splendours along with some major new public works has been budgeted at \$7 billion by the jubilee preparations committee.

A new underground train line from Saint John Lateran to Saint Peter's basilica, a 16-km stretch with stops at the Colosseum and the Piazza Venezia, is a major project.



Mission in India: Embassy of Italy, 50-E, Chandragupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 6114355; Fax: 6873889.

Consulate General: Vaswani Mansion, 120, Dinsha Wachha Road, Bombay-400 020; Tel: 2874794.

Consulate General: 3, Raja Santosh Road, Calcutta-700 027. Tel: 712414.

Consulate General: 5th Floor, Sudarshan Bldg. No. 86, Chamiers Road, Madras. Tel: 860623.

Jamaica

Cap: Kingston; **Area:** 11,425 sq.km; **Pop:** 2.4 m.; **Language:** English and Jamaican Creole; **Literacy:** 98%; **Rel:** Christianity; **Currency:** Jamaican Dollar. \$1 = 22; **p.c.i:** \$ 1400; **Head of State:** Queen Elizabeth II; **Gov.Gen.:** Howard Felix Cooke; **PM:** Percival Patterson.

Jamaica, an island in the Greater Antilles group of the West Indies, is situated in the Caribbean Sea, 144 km south of Cuba.

Jamaica was visited by Columbus in 1494 and ruled by Spain till 1655 when Britain occupied it. On August 6, 1962 Jamaica became fully independent and a member of the Commonwealth.

Agriculture, mining and tourism form the backbone of the economy. The dominant crop is sugar, with molasses and rum as important by-products. Bananas, citrus fruits and coconuts are also grown. Jamaica is the world's second largest producer of bauxite and alumina. Other industries are cement, tobacco and consumer goods.

No representation in India.

Japan

(Nippon); **Cap:** Tokyo; **Area:** 377,765 sq.km; **Pop:** 125.1 m.; **Lang:** Japanese; **Literacy:** 99%; **Rel:** Shintoism and Buddhism; **Currency:** Yen. \$1 = 85, **p.c.i:** \$19,642. **Head of State:** Emperor Akihito; **PM:** Tomiichi Murayama.

Japan, an archipelago off E. coast of Asia,

consists of four main islands, Honshu (Mainland), Hokkaido, Kyushu and Shikoku and a number of smaller islands of which Okinawa is one. Japan has a deeply indented coastline measuring 26,600 km. Main ports are Yokohama, Kobe, Nagoya and Osaka. There are about 60 more or less active volcanoes of which the best known is Mount Aso. The famous Mount Fuji is not active.

Legend has it that the Japanese Empire was founded by Emperor Jimmu in 660 B.C. However, there was no centralized authority till A.D.

Female wages are low !

Women earn 50 to 80 per cent of what men earn, for the same kind of work. The lower end is seen among women workers in Korea, Japan and Singapore. The gap between men's wages and those of women in the developed countries is usually between 10% and 30%. Among the developing countries, Sri Lanka appears to have gone the farthest in gender equality in wages - female wages are 96% of men's wages.

International Labour Organisation (ILO) says that while all over the world the participation of women in 'visible' work is increasing, female wages remain less than those of men, job quality is deteriorating and a feminisation of poverty is taking place.

Women's earnings as a percentage of men's earnings - 1985 and 1991-93 (Non-agricultural industries)

Developed countries	1985	1991-93
Denmark	84	83
Germany	73	74
Japan	52	51
U.K.	69	71
U.S.A.	72	82
Developing countries		
Kenya	85	85
Republic of Korea	48	57
Paraguay	88	75
Sri Lanka	76	96

Among the reasons for the lower wages for women ILO offers are that women's work is valued less than that of men; women are in jobs which do not give full-time work; and they are often unable to work late hours.

1868 when Emperor Meiji united the whole of Japan under his rule. Japan had little trade relations with foreign countries until 1854 when the Japanese entered into a trade treaty with USA. In 1889 Japan had its first constitution. Japan's victory in the Russo-Japanese War of 1904-05 raised her prestige among European powers.

Main Islands of Japan

Name Island/region	Area (sq km)	Major city
Honshu, Kanto	32,413	Tokyo
Hokkaido	83,408	Sapporo
Kyushu	42,144	Fukuoka
Shikoku	18,795	Matsuyama

Rice, the staple food of Japan, is cultivated in half the area of arable land. Other crops are wheat, barley, potatoes and tobacco. Except for limestone and sulphur, Japan is poor in minerals and Japanese industry is heavily dependent on imported raw materials and fuel. Japan, one of the most industrially advanced countries of the world has emerged after World War II, as a leader in technology. The principal industries are automobiles, iron and steel, chemicals, textiles (cotton, wool, silk and synthetics), fishing, ceramics, precision instruments, fertilizers, machinery and shipbuilding. Japan has evolved an extensive fishing industry.

Japanese women have been the world's longest lived (life expectancy 82 years) since 1985 and Japanese men (76 years) since 1986.

In July, '95 the three parties in Japan's coalition were trounced in elections for the upper house.

Mission in India: Embassy of Japan, 50G Shantipath, Chanakyapuri, New Delhi - 110021. Tel: 687-6581; Fax: 6885587.

Consulates: Babasaheb Dahanukar Marg, Cumballa Hill, Bombay - 400026. Tel: 4933857. 12, Pretoria Street, Calcutta - 700071. Tel: 222241.

60 Spur Tank Road, Chetput, Madras - 600031. Tel: 865606.

Jordan

(Hashemite Kingdom of Jordan) al Mamlaka al Urduniya al Hashemiyah; **Cap:** Amman. **Area:** 97,740 sq.km; **Pop:** 5.4 m.; **Lang:** Arabic and English; **Literacy:** 71%; **Rel:** Islam; **Currency:** Jordan Dinar. \$1 = 0.69; **p.c.i.:** \$ 2070; **Head of State:** King Hussein; **PM:** Sharif Zaid Ben Shaker.

A constitutional monarchy in south-west Asia, Jordan was popularly known as Trans-Jordan till 1949, when the popular name was changed

to the Hashemite Kingdom of Jordan. The population is chiefly Arab of whom the majority are Muslims. In 1946, Jordan became an independent state.

Jordan is largely desert but the western portion is fertile and produces citrus fruits, wheat, barley, lentils and water melons. Phosphates make up the country's most important export item, but tourism remains its main foreign exchange earner.

On July 25, 1994, Israel and Jordan signed a joint declaration in Washington, ending 46 years of hostility.

Industry: Textiles, cement, food-processing, petroleum products, iron, fertilizer.

Mission in India: Embassy of the Hashemite Kingdom of Jordan, 1/21, Shantiniketan, New Delhi - 110 021. Tel: 606678; Fax: 6883763.

Kazakhstan

(Republic of Kazakhstan) Kazak Respublikasy; **Cap:** Almaty (to be shifted to Akmola); **Area:** 2,717,300 sq.km; **Pop:** 17.1 m.; **Lang:** Kazakh, Russian, German. **Rel:** Islam, Christianity. **Currency:** the tenge(=500 ruble); p.c.i.: \$ 2,470; **President:** Nursultan Nazarbayev; **PM:** Akezhan Kazhegeldin.

A former Soviet Republic which declared independence on December 16, 1991, Kazakhstan stretches from the Chinese border to the Caspian Sea and is bounded by Russia, Uzbekistan and Kirghizia.

The second largest former Soviet Republic is an ethnically diverse country whose population includes over 100 nationalities. About 60% of the people live in urban areas. Half of the population is Russian or Ukrainian working on farms and in industries.

Agriculture: Grain, sugar beet, potatoes, vegetables, meat, milk, eggs. Noted for its sheep from which high quality wool is obtained.

Natural resources: Half of former Soviet Union's total deposits of copper, lead and zinc are in Kazakhstan. Other minerals: coal, tungsten, oil, nickel, chromium, molybdenum, manganese.

Industry: Iron ore, sulphuric acid, ferroconcrete, knitwear, footwear, hosiery. Among former Soviet Union's industrial republics, Kazakhstan has the third place.

Mission in India: EP 16-17, Chandragupta Marg, Chanakyapuri, New Delhi-110 021; Tel: 6888252; Fax: 3018668.

Kenya

(Republic of Kenya) Jamhuriya Kenya; **Cap:** Nairobi; **Area:** 582,646 sq.km; **Pop:** 28.3 m.;



Lang: Kiswahili, English, Kikuyu and several other local languages; **Literacy:** 50%; **Rel:** Tribal, Christianity and Islam; **Currency:** Shilling. \$1 = 44.51; **p.c.i.:** \$ 270; **President:** Daniel T Arap Moi.

Formerly a British colony, Kenya in East Central Africa became independent on December 12, 1963 and a Republic within the Commonwealth on December 12, 1964.

Kenya's prosperity rests largely on agricultural products. The chief cash crops are coffee, tea, sisal, cereals, wattle and pyrethrum. Kenya has an important dairy industry. Mineral industries are being organised. Other industries include textiles, consumer goods and processed foods. Tourism has expanded considerably. Large game reserves have been developed.

Kenya has the world's highest rate of population growth (around 4%).

Tribal clashes in the western provinces claimed thousands of lives in early 1990s. Widespread unemployment and inflation are major problems.

Mission in India: High Commission of Kenya,

Lifetimes shortened

Average Life Expectancy in the year 2010 in countries hardest hit by AIDS (source: Centre for International Research, U.S. Bureau of the Census).

National Average

Country	with AIDS	Without AIDS
Kenya	39.8	67.7
Malawi	32.7	56.8
Rwanda	33.6	61.5
Tanzania	35.3	60.7
Uganda	31.5	58.9
Zambia	33.4	66.2
Zimbabwe	39.8	69.9
Brazil	62.6	69.5
Haiti	43.9	58.8
Thailand	44.8	75.1

66, Vasant Marg, Vasant Vihar, New Delhi - 110057. Tel: 6876538; Fax: 6876550.

Kiribati

(Republic of Kiribati); **Cap:** Bairiki (on Tarawa atoll); **Area:** 861 sq. km; **Pop:** 78,000; **Lang:** Gilbertese and English; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Australian Dollar US \$1 = \$1.42; **p.c.i:** \$ 700; **President:** Teatao Teannaki.

Gilbert islands, till recently a British colony, became independent under the name Kiribati (pronounced Kiribas) in July, 1979.

These islands, spread over a vast area in South West Pacific, number around 33. All islands except Ocean Island (Banaba) are low atolls with coconuts, pandanus and bread fruit forming the main vegetation. The population is Micronesian and Polynesian. Agriculture and fishing are the main occupations. Ocean Island has high grade phosphate deposits which are being mined and exported. Copra is the other major export item.

No representation in India.

Korea (North)

(Democratic People's Republic of Korea) Chosun Minchu-chui Inmin Konghwa-guk; **Cap:** Pyongyang; **Area:** 120,538 sq.km; **Pop:** 23.9m.; **Lang:** Korean; **Literacy:** 99%; **Rel:** Traditionally Buddhism and Confucianism, now mostly atheist; **Currency:** Won (KPW). \$1 = 2.14; **p.c.i:** \$ 910; **President:** Kim Jong Il; **PM:** Kang Song-San.

The Democratic People's Republic of Korea occupies the northern part of the Korean peninsula.

During the Second World War, America occupied South Korea, and Russia North Korea. At the Potsdam Conference, the 38th parallel of latitude was recognised as the line of division between the occupation areas of Russia and America. North Korea was formed into the Democratic People's Republic of Korea on Sept. 9, 1948.

Kim Il Sung, who ruled Korea since 1948 died in July, 1994.

All industries are nationalised and land distributed among the peasants. Agriculture has since been collectivised. Chief crops: rice, maize, potatoes. Industrial development has concentrated on heavy industry, electricity, metallurgy, machinery and chemicals. The country is rich in coal and iron and many non-ferrous metals and hydro-electric power. It is one of the five leading countries of the world in the pro-

duction of tungsten, graphite and magnetite. Several proposals for talks between North and South Korea on reunification have been made since 1980, but have repeatedly broken down.

In Mar. '93, N. Korea became the first nation to formally withdraw from the Nuclear Nonproliferation Treaty.

Mission in India: Embassy of the Democratic People's Republic of Korea, 42-44 C 31 Friends Colony East, New Delhi - 110 065. Tel: 6829644; Fax: 6466357.

Korea (South)

(Republic of Korea) Taehan Min'guk; **Cap:** Seoul; **Area:** 98,859 sq.km; **Pop:** 45.0m.; **Lang:** Korean; **Literacy:** 92%; **Rel:** Buddhism, Christianity and Confucianism; **Currency:** Won. \$1 = 805; **p.c.i:** \$ 6740; **President:** Kim Young-Sam; **PM:** Lee Hong Koo.

The Republic of Korea, formally proclaimed on August 15, 1948, forms the southern part of the Korean peninsula.

Agriculture is the mainstay of the economy. Chief crops are rice, wheat, barley, potatoes and vegetables. Fish is both an export item and a source of food. There are substantial coal deposits. Other minerals include iron, tungsten, graphite and fluorite. Has made big leaps in industry - textiles, electronics, steel, petrochemicals, ships and motor vehicles.

Mission in India: Embassy of the Republic of Korea, 9 Chandragupta Marg, Chanakyapuri, New Delhi - 110021. Tel: 6885412; Fax: 91-11-688 4840.

Consulate (Honorary): Kothari Building, 114 N. H. Road, Madras-600 034. Tel: 472131.

Kuwait

(State of Kuwait) Dowlat al-Kuwait; **Cap:** Kuwait City; **Area:** 17,656 sq.km; **Pop:** 1.5m.; **Lang:** Arabic and English; **Literacy:** 71%; **Rel:** Islam; **Currency:** Kuwait Dinar. \$1 = 0.298. **p.c.i:** \$ 19,700; **Amir:** Shaikh Jabir al Ahmed al-Jabir al-Sabah; **PM:** Shaikh Saad al-Abdullah as Salem as-Sabah.

Kuwait, a small Arab state, is on the north western coast of the Persian Gulf between Iraq and Saudi Arabia.

One of the richest oil nations of the world, Kuwait was traditionally under the rule of the Al-Sabah dynasty founded in 1756. Became independent state on June 10, 1961.

Kuwait is the world's fourth largest producer of petroleum and second largest exporter. Other products: fertilizers, chemicals, building mate-

als, shrimp. Only one percent land is cultivated.

Iraq invaded and annexed Kuwait on August 1990. However they were beaten back by a united force under the U.N..

Mission in India: Embassy of the State of Kuwait, 5-A, Shantipath, Chanakyapuri, New Delhi 110021. Tel: 600791; Fax: 6873516.

Consulate General: 120 D Wachha Road, Aswani Mansion, Bombay-400 004; Tel: 873007, 2871879.

Kyrgyzstan

(Republic of Kyrgyzstan) Kyrgyz Respublikasy; **Cap:** Bishkek; **Area:** 198,500 sq.km; **Pop:** 4.7 m.; **Lang:** Kirghiz, Russian; **Currency:** Som Us\$1=4.10; **President:** Askar Akayev; **PM:** Apas Jumagulov.

A former Soviet Republic that became independent in December, 1991, Kirghizia is situated on the Tien-Shan mountains. It has China, Kazakhstan, Uzbekistan and Tadzhikistan as neighbours.

Agriculture: Kirghizia is famed for its livestock breeding. Bee-keeping is well-developed.

Products: Grain, cotton, potatoes, vegetables, fruit, meat, milk, eggs, wool.

Industry: Sugar, food, cotton, wool, tanning, flour mills, tobacco, timber, textile, engineering, metallurgy, oil and mining.

Mission in India: A 9/32, Vasant Vihar, New Delhi-110 057; Tel: 6886890; Fax: 6881868.

Laos

(Lao People's Democratic Republic) Sathalanalat Paxathipatai Paxaxon Lao; **Cap:** Vientiane; **Area:** 236,800 sq.km; **Pop:** 4.9 m.; **Lang:** Lao, Tribal, English, French; **Literacy:** 45%; **Rel:** Buddhism and tribal beliefs; **Currency:** New Kip \$1 = 728.95; **p.c.i:** \$ 250; **President:** Nouhak Phoumsavan; **PM:** Gen.Khamtay Siphandon.

Laos—Lao People's Democratic Republic—occupies a strategic position in south east Asia. Laos, a French protectorate since 1893, became an independent sovereign within the French Union in 1949. Conflicts among neutralist, communist and conservative factions created a chaotic political situation. On Dec. 2, 1975 the republic was proclaimed.

The chief products are rice, maize, tobacco, cotton. Major industrial products: Tin, timber, textiles.

Mission in India: Embassy of the Lao P.D.R., F-53, Panchsheel Park, New Delhi-110017; Tel: 6427447; Telex: 31-70128 LPDR IN.



Latvia

(Republic of Latvia) Latvijas Republika; **Cap:** Riga; **Area:** 63,700 sq.km; **Pop:** 2.6 m.; **Lang:** Latvian; **Rel:** Christianity; **Currency:** the lats \$1=0.53 lats; **p.c.i:** 1,930; **Head of State:** Guntis Ulmanis; **PM:** Maris Gailis.

Latvia seceded from Soviet Union and attained independence in August, 1991, after having attempted to establish independence in 1990.

Latvia has the Baltic sea on the north and west. Neighbours are Estonia, Lithuania, Byelorussia and Russia.

Urbanisation has changed the face of this predominantly agricultural country.

Agriculture: Crops-oats, barley, rye, potatoes, flax, sugarbeet, meat, milk, eggs. Cattle breeding and dairy farming are chief occupations.

Natural resources: peat, briquettes, gypsum.

Industry: Electric railway passenger cars and long-distance telephone exchanges (the main producer of these in former Soviet Union), paper and woollen goods, sawn timber, mineral fertilizers, hosiery, garments, leather footwear, chemical fibre, buses, radio receivers.

Lebanon

(Republic of Lebanon) al-Jumhuriya al-Lubnaniya; **Cap:** Beirut; **Area:** 10,400 sq.km; **Pop:** 3 m.; **Lang:** Arabic, French & English; **Literacy:** 75%; **Rel:** Christianity and Islam; **Currency:** Pound \$1 = 1638; **p.c.i:** \$ 1400; **President:** Elias Hrawi; **PM:** Rafik Hariri.

The Republic of Lebanon occupies a strip of land along the Mediterranean coast between Syria and Israel. Lebanon became independent in 1941.

Primarily an agricultural country, Lebanon produces olive oil, grain and fruits. The chief industries are oil refining, food processing, textiles, chemicals and cement. Tourism used to be a valuable source of income.

According to constitutional conventions, the Maronite Christians and Sunni Muslims shared

power. However, because of the 16-year-old civil war between the Christians (42%) and Muslims (57%) there has been no stable administration.

In October 1990, Christian army led by Gen. Michel Aoun was defeated by the Syrian-backed militia supporting president Elias Hrawi, who was installed in power by all Arab consensus.

In the civil war, above 125,000 people are feared dead.

Salim Hoss led a government of national reconciliation grouping ministers from the seven main factions - Maronite Christians, Sunni Muslims, Shia Muslims, Druse, Armenian, Greek Orthodox and Greek Catholic.

Mission in India: Embassy of Lebanon, 10, Sardar Patel Road, New Delhi - 110021. Tel: 3013174; Telex: 31-61161 LBAN IN.

Consulate: 27A, Camac Street, Calcutta - 700016. Tel: 44-7867.

Lesotho

(Kingdom of Lesotho); **Cap:** Maseru; **Area:** 30,355 sq.km; **Pop:** 2.1 m.; **Lang:** English and Sesotho; **Literacy:** 60%; **Rel:** Christianity and Tribal; **Currency:** Loti (Plural Maloti) \$1 = 3.57 Maloti. **p.c.i.:** \$ 660; **Head of State:** King Moshoeshoe II; **PM:** Nisu Mokhehle.

The Kingdom of Lesotho is an enclave within the Republic of South Africa. Lesotho was a British protectorate under the name Basutoland. It became independent as Lesotho on Oct. 4, 1966.

The principal occupation is agriculture. Crops: maize, grains, peas, beans. Livestock-raising is important activity. Lesotho possesses water and hydro-electric resources of great potential. Livestock, diamonds, wool and mohair are the main exports. Industry: Food processing. Most of Lesotho's GNP is provided by citizens working in S. Africa.

No representation in India.

Liberia

(Republic of Liberia); **Cap:** Monrovia; **Area:** 111,369 sq.km; **Pop:** 3.0 m.; **Lang:** English and Tribal dialects; **Literacy:** 40%; **Rel:** Christianity, Islam, traditional beliefs; **Currency:** Liberian Dollar \$1 = 1; **p.c.i.:** \$ 440 (1987); **President:** David Kpormakor (head of transitional Council of State).

Liberia lies on the Atlantic coast of Africa. It was founded in 1822 in order to settle freed American slaves in West Africa and declared a republic on July 26, 1847.

About 90 per cent of the population is en-

gaged in agriculture, much of it at subsistence level. Main crops are cassava, coffee, rice, cocoa and palm oil. Iron ore and rubber are the main exports. Industry: Food processing, mining.

Civil strife tore the country apart in 1990. President Maj. Gen. Samuel Kanyon Doe was killed. An interim government led by Prof. Amos Sawyer was installed by the peace-keeping force of the Economic Community of West Africa. About half the population became refugees as a result of the Civil War, which has claimed 150,000 lives.

The three main sides that have been fighting for over four years are: Charles Taylor's rebel National Patriotic Liberation Front, the interim government under President Amos Sawyer, and the United Liberation Movement (ULIMO), a third force loosely allied to the army. In March, 1994, a five-member ruling council representing the three groups took oath and in May a 17-member coalition transition government was instituted. After six years of devastating civil war that made this the most violent country in the region, peace has returned.

Mission in India: Embassy of the Republic of Liberia, Plot No. 79, Poorvi Marg, Vasant Vihar, New Delhi - 110057.

Consulate General: 186 Sarat Bose Road, Calcutta - 700029. Tel: 46-1164.

Libya

(Socialist people's Libyan Arab Jamahiriya al-Jamahiriya al-Arabiya al-Libya al-Shabiya al-Ishtirakiya); **Cap:** Tripoli; **Area:** 1,759,540 sq.km; **Pop:** 5.4 m.; **Lang:** Arabic; **Literacy:** 64%; **Rel:** Islam; **Currency:** Libyan Dinar \$1 = 0.360; **p.c.i.:** \$ 5500; **Head of State:** Col. Muammar A. Qadhafi; **PM:** Abu Zaid Omar Dourda.

An Arab state on the Mediterranean coast, North Africa, Libya changed its name to The Socialist People's Libyan Arab Jamahiriya in 1977. Jamahiriya means State of the masses. Formerly an Italian colony, Libya became an independent state in 1952. The king was deposed in 1969.

The main agricultural products are wheat, barley, dates, olives, almond and citrus fruit. Fishing, tobacco processing, dyeing and weaving, handicrafts and petroleum are the important industries. Oil was discovered in 1957 and today Libya is one of the leading producers of oil in the world.

Mission in India: People's Bureau of the Great Socialist People's Libyan Arab Jamahiriya, Golf Links, New Delhi - 110003. Tel: 46977. Fax: 4633005.

Liechtenstein

(Principality of Liechtenstein) Fürstentum Liechtenstein; **Cap:** Vaduz; **Area:** 160 sq.km; **Pop:** 30,000; **Lang:** German; **Literacy:** 100%; **Rel:** Christianity; **Currency:** Swiss Franc. \$1 = 53; **p.c.i:** \$29,797; **Head of State:** Prince Hans Adam II **PM:** Mario Frick.

Liechtenstein is a small state on the upper Rhine, between Austria and Switzerland. It measures 24 km from north to south and 9 km from east to west. It became an independent kingdom in 1866.

Foreign workers comprise a third of the population: Many international corporations have headquarters in Liechtenstein.

The country has remained neutral and undamaged in all European wars since 1868, when the army was abolished. In 1984, male voters granted women the right to vote.

The economy is mainly industrial. Cattle-rearing is highly developed. The country's farming population has gone down from 70% in 1930 to 2% in 1988. Chief industries are machines and tools, textiles, foodstuffs, leatherware, chemicals, furniture and ceramics.

Lithuania

(Republic of Lithuania) Lietuvos Respublika; **Cap:** Vilnius (Vilna); **Area:** 65,200 sq.km; **Pop:** 3.7 m.; **Lang:** Lithuanian; **Rel:** Christianity; **Currency:** the litas \$1=4.00 litas; **p.c.i:** \$1,310; **President:** Algirdas Brazauskas; **PM:** Adolfas Slezevicius.

Lithuania seceded from Soviet Union and attained independence in August, 1991. Earlier in March 1990, Lithuania had formally declared its independence but USSR defeated it by cutting off supplies and by other manoeuvres. It is bordered by Latvia, Byelorussia, Poland and Russia.

Russia withdrew its last soldier from Lithuania on Aug. 31, 1993.

The country, which was mainly agricultural before 1940, has been considerably industrialized since.

Agriculture: Grain, potatoes, sugar-beet, vegetables, meat, milk, eggs.

Natural resources: Forests cover 1,554,000 hectares, 70% of which consist of conifers, especially pines. Peat reserves total 4,000 m.cu. metres.

Industry: Heavy engineering, ship-building, building material industries, electronic goods, chemical, paper, leather, sugar, garments.



Luxembourg

(Grand Duchy of Luxembourg) Grand-Duché de Luxembourg; **Cap:** Luxembourg; **Area:** 2586 sq. km.; **Pop:** 0.4 m.; **Lang:** French, German, English and Luxembourgish; **Literacy:** 100%; **Rel:** Christianity; **Currency:** Luxembourg Franc (LF), \$1=34.86; **p.c.i:** \$35,800; **Head of State:** Grand Duke Jean; **Head of Govt.:** Jean-Claude Juncker.

Luxembourg is a small state lying in between Germany, Belgium and France. It is a Grand Duchy.

Its independence was confirmed by the Treaty of London in 1867.

A member of the European Economic Community, the Benelux, the European Steel and Coal Community and the Euratom, Luxembourg is a highly industrialised state. Its iron deposits form the basis of a big steel industry, which accounts for 70 per cent of the country's exports. Other industries: Chemicals, beer, tires, tobacco, metal products, cement. Agriculture occupies only 10 per cent of the population. Chief crops: Corn, wine and dairy products.

Mission in India: Consulate General of the Grand Duchy of Luxembourg, 2 Panchsheel Marg, Chanakyapuri, New Delhi-110 021. Tel: 3015855.

Macedonia

Cap: Skopje; **Area:** 25,713 sq. km.; **Pop:** 2.2 m.; **Lang:** Macedonian; **Literacy:** 90%; **Rel:** Christianity and Islam; **Currency:** the Denar; **p.c.i:** \$2,400; **President:** Kiro Gligorov; **PM:** Branko Crevenkovski.

Ethnic breakdown: Macedonians - 67%. Albanians - 20%; Others (including Gypsies) - 13%.

Former Yugoslavia's poorest republic, Macedonia is land-locked and is bounded by Bulgaria, Greece, Albania and Yugoslavia. On September 8, 1991 it voted to declare independence but EC and US refused to give recognition owing to Greek objections to its use of the name

Macedonia. Greeks say Macedonia's name implies territorial claims on the northern Greek province of Macedonia. Macedonia has adamantly opposed a name change. Claims to the historical Macedonian territory have long been a source of contention with Bulgaria and Greece.

Macedonia became the 181st member of the UN on April 8, 1993 under the temporary name 'the former Yugoslav republic of Macedonia'. Greece declared a trade blockade on Macedonia in Feb. 1994, demanding that the landlocked country drop a Greek symbol from its flag. The issues of name and flag are to be resolved with the intervention of international mediators.

Agricultural products: Wheat, maize, cotton, timber, livestock.
Industry: Electricity, lignite, steel, cement.

Madagascar

(Democratic Republic of Madagascar)
Republika Demokratika Malagasy; **Cap:** Antananarivo; **Area:** 587,341 sq.km; **Pop:** 14.8 m.; **Lang:** Malagasy and French; **Literacy:** 53%; **Rel:** animist, Christianity, Islam; **Currency:** Malagasy Franc. \$1 = 3749.76; **p.c.i:** \$ 240; **President:** Albert Zafy; **PM:** Francisque Ravony

Madagascar, the world's fourth-largest island, lies in the Indian Ocean, off the south-east coast of Africa. It was discovered in 1500 by the Portuguese Diego Diaz; became a French colony in 1896, and an Overseas Territory in 1946. In

1958, it was proclaimed the autonomous Malagasy Republic within the French Community, achieving full independence on June 26, 1960.

The economy is essentially agricultural. Rice is the staple food and coffee the chief export. Cassava, fruits, tobacco, cloves and vanilla are also cultivated. Large herds of cattle are raised. Mineral deposits include graphite, mica, nickel and copper. World Bank reckons that half the population is malnourished. **Industry:** Food processing, textiles.

Malawi

(Republic of Malawi); **Cap:** Lilongwe; **Area:** 118,784 sq.km; **Pop:** 11.1 m.; **Lang:** English, Chichewa, Lomwe, Yao; **Literacy:** 25%; **Rel:** Christianity, tribal and Islam; **Currency:** Kwacha \$1 = 15.35 (Floating since Feb. 94); **p.c.i:** \$ 220; **President:** Bakili Muluzi.

Malawi in south-east Africa is bounded by Tanzania, Mozambique and Zambia. Lake Malawi, formerly Lake Nyasa, the third largest lake in Africa, lies on its eastern side. This land of lakes and mountains has infinite beauty and is considered a tourists' paradise. Malawi, formerly the British protectorate Nyasaland, (until 1907 British Central Africa) became independent in 1964 and a republic in 1966.

Dr. Hastings Kamuzu Banda was President since 1971. In the May, 1994 elections, his autocratic system was rejected by Malawians.

Malaysia's new capital

A new federal capital of Malaysia was launched by Prime Minister Mahathir Mohamad in August, 1995 - his most grandiose scheme yet.

The administrative capital, to be built on 4,400 hectares of land 35 km. south of Kuala Lumpur will cost \$ 8 b.—the most expensive project ever undertaken in the country. The city is to be completed by 2008.

Putrajaya, named after Malaysia's first prime minister, Tunku Abdul Rahman Putra, will have a population of 250,000.

Mahathir said it will be part of a mega-city to propel the country into the 21st century.

Standing high on a hill overlooking rolling oil-palm estates, rural villages and patches of jungle, Mahathir unveiled a model of the futuristic metropolis and buried a time capsule under a 15-metre stainless steel piece of abstract art meant to represent future Malaysia.

The new federal capital will form a triangle with Kuala Lumpur, which will remain the commercial capital, and the new \$ 3.6 b. Kuala Lumpur International Airport (KLIA), Mahathir said.

"One day, Kuala Lumpur, Putrajaya and KLIA will become one 'mega-city' that can be compared to centres like Tokyo/Yokohama".

Malaysia will install the latest in satellite and fibre-optic technology to create a "multi-media super corridor" in the triangle. "This will allow Putrajaya to become an information hub that is dynamic in trade and international telecommunications," Mahathir said.

The capital's design is based on the "garden city" concept, with office buildings and housing developments built around a man-made lake. The city will contain a commercial centre, a civic and cultural area, sports and recreational facilities, including a stadium docks and an aquatic centre.

Poor in resources, Malawi's agriculture is still at subsistence level. Maize is the main food crop. The chief cash crops are tea, tobacco, sugar and cotton.

Industry: Textiles, sugar, cement.
No representation in India.

Malaysia

Cap: Kuala Lumpur; **Area:** 330,434 sq.km; **Pop:** 20.1 m.; **Lang:** Malay, English, Chinese, Tamil; **Literacy:** 80%; **Rel:** Islam, Hinduism, Buddhism; **Currency:** Ringgit. \$1 = 2.55; **p.c.i.:** \$3275; **Supreme Head of State:** Sultan Tuanku Jaafar Tuanku Abdul Rahman; **PM:** Dr. Mahathir bin Mohamad.

Malaysia, at the southern end of the Malay Peninsula in south-east Asia, is a federation of 13 states comprising Johor, Kedah, Kelantan, Melakaa, Negeri Sembilan, Pahang, Perak, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor and Terengganu.

Malaysia was created in 1963. It included Malaya, which had become independent in 1957, plus the formerly-British Singapore, Sabah and Sarawak. Singapore was separated in 1965.

Malaysia has a multi-racial population. Of the total, 55 per cent are Malays, 33.4 per cent Chinese, 10.1 per cent Indians and 1.4 per cent others. About 1.2 m. foreigners work in Malaysia, plus an unknown number of illegal immigrants.

Natural resources are abundant. Malaysia is the world's largest producer of rubber, tin and palm oil. Malaysia is also the world's leading exporter of pepper and timber. Other crops are rice, coconut, vegetables, pineapples, coffee, tea, cocoa, etc.

Iron ore, gold, ilmenite and bauxite are the major mineral resources. The petroleum industry in Malaysia is becoming significantly important to the economy of the nation. Leading industries are food products, tobacco, wood products, electrical goods, textiles, chemical products, construction goods, non-metallic products, transport equipment and the processing of agricultural products from estates (eg. rubber, palm oil). Industrialization has been speeded up with foreign investment. P.M. Dr. Mahathir is the chief architect of the country's privatisation programme.

A new federal capital is to be built at Putrajaya, 35 km south of Kuala Lumpur.

'Peninsular Malaysia' is a geographical term and comprises the 11 States of Johor, Pahang, Negeri Sembilan, Selangor, Perak, Kedah, Perlis, Kelantan, Trengganu, Penang and Melaka.

Mission in India: High Commissioner of Malaysia, 50-M Satya Marg, Chanakyapuri, New



Delhi - 110021. Tel: 601291; Fax: 91-11-6881538.
Asst High Commission: 287, TTK Road, Madras-600 018. Phone: 453599, 453580.

Maldives

(Republic of the Maldives) Divedhi Raajjeyge Jumburiya; **Cap:** Male; **Area:** 298 sq.km; **Pop:** 252,000; **Lang:** Divehi (Sinhalese dialect); **Literacy:** 93%; **Rel:** Islam; **Currency:** Rufiyaa US \$ 1 = 11.77; **p.c.i.:** \$ 500; **President:** Maumoon Abdul Gayoom.

The Republic of Maldives lying about 675 km south-west of Sri Lanka, consists of more than 1,200 small coral islands (202 inhabited), grouped in 19 atolls, in the Indian Ocean.

History: Maldives, called the Maldive Islands until April 1969, formerly had an elected Sultan as head of state. The islands were placed under British protection, with internal self-government, in 1887. They became a republic in January 1953 but the sultanate was restored in February 1954. Maldives became fully independent, outside the Commonwealth, on 26 July 1965. Following a referendum, the country became a republic again in November 1968, with Ibrahim Nasir, Prime Minister since 1954, as President.

In 1956 the Maldivian and British Governments agreed to the establishment of a Royal Air Force staging post on Gan, an island in the southernmost atoll, Addu. In 1975 the British Government's decision to close the base and to evacuate British forces created a large commercial and military gap. In October 1977 President Nasir rejected an offer of an annual payment of US \$ 1 m. from the USSR to lease the former base on Gan, announcing that he would not lease the island for military purposes, nor lease it to a superpower.

In 1981 the President announced plans to establish an international business complex on Gan. By 1982 two garment factories were operational, and a third was under construction. Gan airport was declared international airport in 1988.

Sword of Damocles over Maldives?

The threat of global warming (a phenomenon which is melting the polar ice caps and causing the oceans to rise terrifies a group of 30 Caribbean, Indian Ocean and Pacific islands. They fear it would lead to a rising sea level that would flood low-lying areas, and might overwhelm some of them, such as the Maldives altogether.

Maldivians are told that their small island nation of the Indian Ocean is sinking. The most dire predictions say that much of the Maldives could be under water before the mid-2000s.

Already residents of three islands have had to be transferred.

The Maldives' vulnerability comes from its unique geography. The country is made up of 1,200 tiny islands, all formed from coral, and on average, just one meter above sealevel at high tide.

The Maldives' slide obviously won't do much for its booming tourist industry. Each year over 250,000 mostly European tourists—about the population of the country - visit 72 resorts to scuba dive among the coral reefs and lie on deserted beaches. Any change in sea level could severely erode most islands' shorelines. "Long before we go underwater, our economy will be crippled," says Hussain Shihab, director of the South Asia Co-operative Environment Programme.

Since the late 1980s, Maldives President Maumoon Abdul Gayoom has been acting as a kind of poster child for global warming, pleading at international conferences for industrialized nations to do something about

the gas emissions that are said to cause rising temperatures. "I stand before you as the representative of an endangered people," he told the U.N. Environmental Conference in Rio de Janeiro in 1992. Gayoom wants to build sea defenses for 50 of the country's 202 inhabited islands.

There is a feeling now that the great global-warming bubble has burst. The 1992 'Earth Summit' in Rio, at which the world committed

itself to avoid the threat that is said to overhang it, was conducted in a spirit of zeal. The globe had just experienced some of the warmest years on record. Politicians made eager promises about curbing greenhouse gases.

Regional politics and national self interest have now entered the talks on global climate. OPEC countries are vehemently opposed to action on climate change. If their industrialised customers commit themselves to further restrictions in greenhouse-gas emissions, demand for oil and gas will fall. As for the rich countries, who still have five years left to meet their target

of stabilising emissions, governments have taken few costly measures because voters are more concerned about jobs than the environment. Even EU countries, the most forceful advocates of strong targets, are not likely to make it. Rich countries also ask why they should make any effort against global warming when poor ones have committed themselves to nothing. Developing countries are now disillusioned by the way the matter is being handled by the developed world.



March 1975 President Nasir dismissed the Minister, Ahmed Zaki, and the post of Minister was abolished. To succeed Nasir would not stand for re-election, the legislature chose Maumoon Abdul Gayoom, Minister of Transport who was approved by referendum in 1978. President Gayoom, who took office in November, announced that his main priority would be the development of the poor rural areas, while in foreign affairs the existing policy of non-alignment would continue. In 1983, 1988 and 1993 Gayoom got re-elected as President for 5-year terms. An attempted coup took place in November, 1988. It was scotched with the assistance of India.

Government: Legislative power is held by the unicameral Citizens Council (Majilis), with 25 members. The country has 20 administrative districts. There are no political parties. The Maldives is divided into the capital and 19 other administrative districts, each under an appointed governor (verin) assisted by local chiefs (aththeebum), who are also appointed.

National Flag: Red with a green panel bearing a white crescent.

Economy: Most of the country's population live on tiny coral islands in scattered atolls. These islands are generally outside a money economy, subsisting by fishing and collecting coconuts. A large proportion of the coconut crop is regularly destroyed by rats, and a programme to eradicate the rats began in 1981. Arable land is minimal. Virtually all the principal staple foods have to be imported.

Maldives achieved an average annual economic growth of 8.9% between 1976 and 1986, largely as a result of increased revenues from fishing and tourism. The islands are covered with coconut palms and yield millet, cassava, yams, melons and other tropical fruit as well as coconut produce. The main industries are fishing, tourism, shipping, reedware, lacquer-work, coconut processing and garment manufacturing.

In 1985 imports amounted to US \$47.9 m. and exports to US \$23 m. of which 29% was to Thailand, 24% to the USA and 20% to Sri Lanka. Bonito (Maldivian fish) is the main export commodity and source of foreign exchange after tourism.

Education: Education is not compulsory. There are three types of formal education: traditional Koranic schools (Makthab), Dhivehi-language primary schools (Madhrasa) and English-language primary and secondary schools. Schools of the third category are the only ones equipped to teach a standard curriculum. In 1984 a national curriculum was introduced in all schools.

In 1987 the islands' rate of literacy (82%), was



the highest in South Asia.

There are direct flights to Europe, Dubai, Kuwait, Karachi, Singapore, Thiruvananthapuram etc.

Tourism: Tourism, introduced in 1972, is the main foreign exchange earner. The islands' attractions include white sandy beaches and multi-coloured coral formations.

Mission in India: No representation in India. Non-Resident High Commissioner stationed at Colombo 25, Melbourne Ave., Colombo-10. Tel: 586762.

Consulates: National Estate, Vidyaviar (W), Bombay-400086. Tel. 5115111, Fax: 5146311.

202, Sethi Bhavan, 7, Rajendra Place, New Delhi-110008. Tel. 5718590, Fax: 5755258.

Hastings Chambers, 7C, Kiranshankar Roy Road, Calcutta - 700001. Tel. 2485400, Fax: 2485750.

Mali

(Republic of Mali) Republique du Mali; Cap: Bamako; Area: 1,240,192 sq.km; Pop: 10.8 m.; Lang: French (official), Bambara and other African languages; Literacy: 25%; Rel: Islam and Tribal; Currency: Franc CFA 1=504; p.c.i.: 5300; **President:** Alpha Oumar Konare; PM: Adoulaye Sekou Sow.

Mali is a land-locked state in West Africa. It was proclaimed an independent republic in 1960.

The area was part of the great Mali Empire until the 15th century. In 1904, it became a French colony named French Sudan and in 1946 part of the French Union. In June, 1960 it became independent and was named the Sudanese Republic. The Sudanese Republic federated with Senegal in the Mali Federation the year. Senegal then withdrew from this and the Sudanese Republic changed its name to Republic of Mali on Sept. 22, 1960.

The country is poor in natural resources. Only about 20 per cent of the land is cultivated. The main crops are rice, millet, groundnuts, cotton. Livestock raising is important and

processing of hides and skins remains the chief industry. There is extensive river-fishing and good export trade in dried and smoked fish.

No representation in India.

Malta

(Republika Ta' Malta); **Cap:** Valletta; **Area:** 316 sq. km; **Pop:** 400,000; **Lang:** Maltese and English; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Lira Maltija (Maltese Lira) \$1=0.36; **p.c.i:** \$6972; **President:** Dr. Censu Tabone; **PM:** Dr. Edward Fenech Adami.

Malta is an island in the central Mediterranean Sea, 95 km from Sicily and about 290 km from the African coast. This state also includes the adjoining islands of Gozo and Comino. Malta became independent in 1964 and a republic in 1974.

The rocky country has no natural resources. Textiles, footwear, rubber products and plastics are exported. Agricultural products include wheat, barley, citrus, onions, potatoes and tomatoes. Tourism, however, remains the island's major industry.

No representation in India.

Marshall Islands

(Republic of the Marshall Islands); **Cap:** Dalap-Uliga-Darrit (on Majuro atoll); **Area:** 181 sq. km.; **Pop:** 50,000; **Language:** Marshallese, English, other indigenous languages and Japanese; **Literacy:** 86%; **Rel:** Christianity; **Currency:** Dollar (US); **p.c.i:** \$ 1500 (1989); **President:** Amata Kabua.

The Republic of Marshall Islands consists of two island/atoll chains, in the Pacific Ocean, the Ratak (sunrise) Chain and the Ralik (sunset) Chain, totalling 31 atolls. Each atoll is a cluster of several small islands circling a lagoon. Kwajalein is the largest of the islets, which number about a hundred. The capital Majuro is about 3200 kms south-west of Honolulu.

About 92% of the population are Marshallese, a Micronesian people.

Marshall Islands was a Trusteeship territory of the United States until Oct. 1986. The Islands became a full U.N. member state in Sept., 1991. The USA controls defence policy and provides financial support. Kwajalein, one of the main atolls in the western chain, is a U.S. missile-testing range and air field.

Minerals: Phosphate deposits are mined on Ailinglaplap atoll.

Agriculture: Coconuts, tomatoes, melons and bread fruit.

Mauritania

(Islamic Republic of Mauritania) République Islamique de Mauritanie; **Cap:** Nouakchott; **Area:** 1,030,700 sq. km; **Pop:** 2.3 m.; **Lang:** Arabic, French and Hassanya Arabic; **Literacy:** 30%; **Rel:** Islam; **Currency:** Ouguiya \$1=128.36; **p.c.i:** 510; **President:** Col. Moaouia Ould Sidi Ahm. Taya; **PM:** Sidi Mohammed Ould Boubacar.

The Islamic Republic of Mauritania is on the Atlantic coast of the West African bulge.

Mauritania, a former French overseas territory, became autonomous in 1958 and full independent on Nov. 28, 1960.

As much as 47% of the total area of the country is desert.

The population is traditionally nomadic, rearing cattle and sheep. Main crops: dates, grain. Fishing is important. Deposits of iron and copper are being exploited. Oil prospecting is going on.

No representation in India.

Mauritius

Cap: Port Louis; **Area:** 2040 sq. km; **Pop:** 1 m.; **Lang:** English, French, Creole and Hindustani; **Literacy:** 94%; **Rel:** Hinduism, Christianity and Islam; **Currency:** Rupee \$1=17.42; **p.c.i:** \$3000; **President:** Cassam Uteem; **PM:** Aneeroo Jugnauth.

Mauritius lies about 800 km east of Madagascar in the Indian Ocean.

Settled by the Dutch in 1638. The French who took over in 1721, brought African slaves. The British who ruled from 1810 to 1968 brought Indian workers for the sugar plantations. The Indian majority in Mauritius are descendants of these workers.

Became an independent state on Mar. 12, 1968.

Sugarcane is the predominant crop. The main secondary crops are tea, tobacco and potatoes. Tourism is a highly developed industry. Other industries: rum, textiles, processing of sugar and tea.

Mission in India: High Commission of the Republic of Mauritius, 5 Kautilya Marg, Chanakyaपुरी New Delhi-110021. Tel: 3011112; Fax: 3019925

Mexico

(United Mexican States) Estados Unidos Mexicanos, **Cap:** Mexico City; **Area:** 1,972,547 sq. km; **Pop:** 93.7 m.; **Lang:** Spanish, Amerindian languages; **Literacy:** 92%; **Rel:** Christianity; **Currency:** New Peso. \$1=6.03 (Controlled rate); **p.c.i:** \$3,470; **President:** Ernesto Zedillo.

A federal republic of middle America, Mexico

came an independent state in 1821 and a republic in 1823.

Mexico is not well suited for agriculture so it is obliged to import food. The important agricultural products are maize, rice, wheat, sugar, coffee and cotton. Sea fishing is also important. Mexico is the world's leading producer of silver, sulphur and fluorite. Other minerals include coal, zinc, lead, manganese, bauxite and uranium. In recent years, Mexico has become one of the main producers and exporters of petroleum. Main Industries: Steel, chemicals, electric goods, textiles, rubber, tourism. In the 1980's Mexico experienced a major economic crisis resulting from inflation, collapse of oil prices and severe unemployment.

Guerrillas of the Zapatista National Liberation Army launched an uprising on Jan. 1, '94 in southern Mexico. A tentative peace accord was reached in March.

Mission in India: Embassy of Mexico, 10 Jor Bagh, New Delhi-110003. Tel: 4697991; Fax: 4692360.

Micronesia

(Federated States of Micronesia); **Cap:** Palikir; **Area:** 702 sq.km.; **Pop:** 111,000; **Lang:** English and local languages; **Literacy:** 90%; **Rel:** Christianity; **Currency:** US Dollar; **p.c.i.:** \$1500 (1989); **President:** Bailey Olter.

The Federated States of Micronesia (FSM) extends across the 1,800 mile-long Caroline Islands archipelago in the Western Pacific. The 4 states of the FSM are Pohnpei, Kosrae, Truk and Yap. Each state consists of several islands, except for Kosrae, a single island. The islands, 607 in all, vary geologically from high, mountainous islands to low, coral atolls.

The FSM, which came into being on May 10, 1979 was a Trusteeship Territory of the United States. In November 1986 USA entered into a Compact of Free Association with it. Became a full UN member state on Sept. 17, 1991. The USA controls defence and provides financial support.

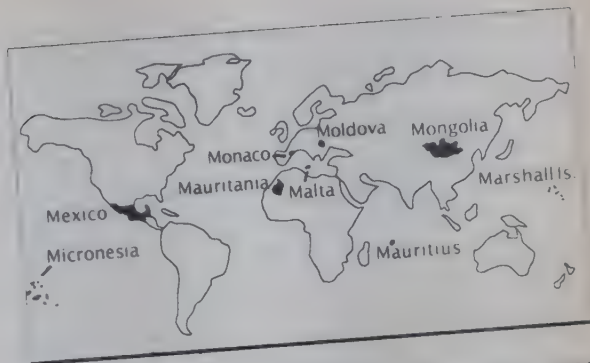
Industry: Tourism, fishing.

Moldova

(Republic of Moldova) Republica Moldaveneasca; **Cap:** Chisinau (formerly Kishinev); **Area:** 33,700 sq.km.; **Pop:** 4.4 m.; **Lang:** Romanian; **Rel:** Christianity, Islam; **Literacy:** 60%; **Currency:** the leu; **p.c.i.:** \$1262; **President:** Mircea Snegur; **PM:** Andre Sanagheili.

A former Soviet republic that became independent in Dec., 1991.

Moldova (Moldavia until 1990) has Ukraine



and Romania as neighbours. The region was taken from Romania in 1940; the people speak Romanian. In a referendum in March, 1994, Moldovans voted to remain independent, and against any union with Romania. Moldova is a fertile black earth plain. It contained about one-fourth of the former USSR's vineyards.

Agriculture: Grain, sugar-beet, vegetables, fruits, grapes.

Industry: Wine-making, tobacco, canning, wood-working, textiles, metallurgy, dairy, TV, fridge, washing machines.

Monaco

(Principality of Monaco); **Cap:** Monaco; **Area:** 1.95 sq.km; **Pop:** 31,000; **Lang:** French, Monégasque and Italian; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Franc \$1=5.59; **p.c.i.:** not available; **Head of State:** Prince Rainier III; **Head of Govt:** Jacques Dupont.

Monaco is a sovereign principality on France's south-eastern Mediterranean coast.

The principality is a series of connected towns—Monaco-Ville, La Condamine, Fontvieille and Monte Carlo with its casinos, opera house, grand hotels, shops and villas.

Monaco is a fashionable pleasure resort visited by as many as 1.5 million of tourists every year. Its main attractions are the casinos and international motor sports the Monte Carlo Rally and the Monaco Grand Prix. Tourism, gambling, and tobacco monopoly are its main sources of income.

There are a number of light industries, such as chemicals, plastics and precision instruments. There were 50 km. of roads in 1991.

Mission in India: Consulate General of Monaco, 114, Sundar Nagar, New Delhi-110003. 623193.

Mongolia

(Mongolian Republic) Mongol Uls. **Cap:** Ulaanbaatar; **Area:** 1,565,000 sq.km. **Pop:** 2.4 m.

Mongolian; Literacy: 89%; Rel: Traditionally Lamaistic Buddhism; Currency: Tugrik \$1=412; p.c.i: \$112 (1990); President: Punsalmassagiyn Ochirbat; PM: Puntsaglin Jasray.

The Mongolian People's Republic, formerly known as Outer Mongolia, lies in Central Asia with Russia to the north and China to the south, east and west. It is one of the world's oldest countries. Much of the Gobi desert falls within Mongolia. It became an independent state in 1921. Political opposition was legalised in 1990. In July, Communists won the first free elections to the legislature. The constitution of 1992 abolished the 'People's Democracy', introduced democratic institutions and a market economy and guarantees freedom of speech.

Mongolia has been changed from a nomadic culture to one of settled agriculture and growing industries with aid from former USSR and

East European nations. Livestock-raising is the principal occupation and comprises horses, oxen, sheep, goats and camels. The herdsmen are organised in collectives. State farms practise large-scale agriculture (crops: grains). Minerals include coal, flourspar, tungsten, tin and copper. Industry: Food processing, textiles, chemicals, cement.

Mission in India: Embassy of the Mongolian People's Republic, 34, Archbishop Makarios Marg, New Delhi-110003. Tel: 4631728; Fax: 91-11-4633240.

Morocco

(Kingdom of Morocco) al-Mamlaka al-Maghrebia; Cap: Rabat; Area: 458,730 sq.km (excluding Western Saharan territory); Pop: 27.0

The Afro-tunnel

A plan to link Spain and Morocco by engineers by building a tunnel under the Strait of Gibraltar has been drawn up. The project, which will in fact connect two continents, has been shaped at the request of the kings of the two countries.

The shafts for the Afro-tunnel have been drilled along both shores and deep into the seabed. Planners have announced (May, '95) they had concluded that a 39-kilometer tunnel 400 metres below sea level was technically feasible.

This would make the Afro-tunnel slightly shorter but much deeper than the tunnel under the English Channel between England and France.

The plan's advocates have said the passage would open an alluring new route for trade and tourism.

Building such a passage is an old dream. Medieval Muslim traders talked of it and so did 19th-century engineers. Yet now that technical prowess makes it possible, there are new reasons to make approval by Spain, and, inevitably, its European Union partners, difficult.

Given Europe's economic and social uncertainty, many Europeans see North Africa as a threatening font of unwelcome immigrants. Far-right groups have already made the millions of Algerian, Tunisian and Moroccan workers and their families living in Europe the grist for their political mill. A new access route, critics have said, would increase the flow of illegal immigrants.

Spanish officials dismiss this argument. They say controlling tunnel traffic would be easy compared with their often futile attempts to stop the traffic in illegal immigrants across the Strait of Gibraltar.

Funds may be a bigger obstacle. Private lenders are not likely to be keen because the Channel Tunnel is considered a financial disaster so far, with enormous debts and traffic well below expectations.

The engineers concluded that the Afro-tunnel could not be built at the shortest point between the two continents - only 14 kilometres between Tarifa, Spain, and Cires, Morocco - because the seabed there is far too deep, said Vicente Garcia Alvarez, vice president of Spain's tunnel commission.

Several million years ago, when the Mediterranean was an enclosed sea, the land mass of Europe and Africa was connected here. Geologists believe that when the Atlantic forced a passage through the mountains, enormous waterfalls formed because the Atlantic's water level was higher. These falls carved a canyon nearly 900 metres deep in the middle of what became the strait.

The chosen site for the tunnel - between Point Paloma in Spain and Malabata in Morocco - is close to 300 metres below sea level at its deepest point.

Cost remains a formidable obstacle. At current prices, the first stage - one rail tunnel and a smaller tunnel for maintenance - would cost \$8 billion.

m. Lang: Arabic, Berber; **Literacy:** 50%; **Rel:** Islam; **Currency:** Dirham \$1=8.50; **p.c.i:** \$1040; **Head of State:** King Hassan II; **PM:** Abdellatif Filali.

The Kingdom of Morocco, which is a constitutional monarchy, is situated at the extreme northwest of Africa. The Atlas mountains stretch across Morocco.

Morocco recovered its political independence from France on March 2, 1956. The northern strip of Spanish Sahara was ceded by Spain in 1958, and in 1969, the former Spanish province of Ifni was returned to Morocco. In 1976, Morocco added 70,000 sq.km. of phosphate-rich land of former Spanish Sahara to its area.

Primarily an agricultural country, Morocco produces cereals, including barley, wheat, corn and fruits. Vineyards are abundant and dates form a regular crop. Livestock raising is important and fishing is well-developed. About 500,000 Moroccans rely on fishing as their occupation. The most important mineral extracted is phosphate, of which Morocco remains a world supplier. Other minerals are iron ore, coal, lead and manganese. Industry: Carpets, clothing, leather goods, mining, sugar, metallurgy, chemicals, tourism. Its foreign debt has made Morocco one of the most indebted countries in the world.

Mission in India: Embassy of the Kingdom of Morocco, 33 Archbishop Makarios Marg, New Delhi-110003. Tel: 4636921; Fax: 4636925.

Mozambique

(Republic of Mozambique) Republica de Mocambique; **Cap:** Maputo; **Area:** 783,030 sq.km; **Pop:** 16.0m. **Lang:** Portuguese and Bantu; **Literacy:** 30%; **Rel:** Traditional beliefs, Islam and Christianity; **Currency:** Metical (Plural: Meticais). \$1=7,099; **p.c.i:** \$80; **President:** Joaquin Alberto Chissano; **PM:** Mario da Graça Machungo.

Mozambique is the old Portuguese East Africa. Became independent on June 25, 1975, after 470 years of Portuguese colonial rule. Mozambique Channel of the Indian Ocean bounds it in the east. The majority of the population belongs to the Bantu tribe. The Zambezi is the largest of the 25 rivers that flow into the Indian Ocean.

In 1974, Frelimo (Front for the Liberation of Mozambique) took over local administration. The 1980's witnessed severe drought, famine, civil war and heavy loss of life. According to a study by Washington-based Population Crisis Committee, Mozambique was the place with the highest human suffering in 1992.



Agreement was reached in Oct. '92 between government and the rightist Renamo (Mozambican National Resistance Movement) guerrilla group for a ceasefire in their 15-year war, which killed more than 600,000, drove 1 million people into exile and left half the population in need of donated food. The treaty provided for all weapons to be handed over to UN, but by Jan. '94, only 13,000 guerrillas had done this.

The economy is based on agriculture. The major cash crops are cashewnuts, sugar, cotton and sisal. Maize, bananas, rice, groundnuts, vegetables and coconuts are also grown. Considerable mineral resources exist although only coal, diamonds and bauxite are now exploited. Mozambique has two-thirds of the world's known reserves of tantalite and is the second largest producer of beryl.

Industry: Steel, engineering, textiles, processing.

No representation in India.

Myanmar (Burma)

(Republic of the Union of Myanmar) Pyeidaungzu Myanma Naingangandaw; **Cap:** Yangon (Rangoon); **Area:** 676,553 sq.km; **Pop:** 46.5 m.; **Lang:** Burmese and Tribal. **Literacy:** 81%; **Rel:** Buddhism; **Currency:** Kyat. \$1=6.36; **p.c.i:** \$250; **Head of State and Govt:** Gen. Than Shwe.

Originally a part of British India, Union of Myanmar (Burma till May 1989) became an independent country on January 4, 1948.

Myanmar, located between south and south East Asia, on Bay of Bengal, is known as the rice bowl of the Far East. Other crops Sugarcane, peanuts, beans. The chief minerals are petroleum, lead, tin, zinc, tungsten, copper, antimony, silver and gems. The rubies, sapphires and jade found in Myanmar are especially famous. Teakwood is exported.

Gen. Ne Win who ruled Burma with an iron hand for 26 years was forced out in popul.

uprising in mid-1988. In June 1990, in the first free elections in 30 years, the National League for Democracy won big majority but the army was reluctant to handover power. Aung San Suu Kyi, the leading opposition leader who won the Nobel Peace Prize was kept under house arrest for about six years and released on July 10, 1995. Chances of talks between the military rulers and Suu Kyi are brightening.

In 1987 the least developed country status was granted by UN to Burma, which was once the richest nation in SE Asia.

Mission in India: Embassy of the Union of Myanmar, 3/50 F, Nyaya Marg, Chanakyapuri, New Delhi-110021. Tel: 600251; Fax: 6877942.

Namibia

Cap: Windhoek; **Area:** 824,292 sq.km; **Pop:** 1.5m; **Lang:** English & Afrikaans, German, several indigenous languages; **Literacy:** 28% (nonwhite), 100% (Whites); **Rel:** Christianity and Tribal; **Currency:** Rand. \$1= 3.38 Namibia Dollar, at parity with rand, was introduced in Sept.'93. **p.c.i:** \$1660; **President:** Sam Nujoma; **PM:** Hage Geingob.

Namibia, formerly known as South West Africa, lies on the Atlantic coast of South Africa. After prolonged insurgency a peace accord was signed on 5th October, 1988 by Angola, Cuba and South Africa, and Namibia became a fully independent nation under the UN mandate on 21 March, 1990. The first general elections for a Constituent Assembly were held in November 1989 when SWAPO (South West Africa People's Organisation) which spearheaded the freedom struggle for 30 years was swept to power.

The biggest population group is the *Owambos*. Diamonds are Namibia's most valuable economic asset followed by copper, zinc, lead, germanium and manganese. Stock-breeding is important; cattle, sheep and goats abound. Fishing is a supplementary source of food and income. Food crops include corn, millet and sorghum. Industry: Canning, textiles, leather, dairy.

Mission in India: High Commission of the Republic of Namibia, D-6/24, Vasant Vihar, New Delhi-110057; Tel: 6110389; Fax: 6116120.

Nauru

(Republic of Nauru) Naoero; **Cap:** Yaren Nauru; **Area:** 21.3 sq.km; **Pop:** 9,400; **Lang:** English and Nauruan; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Australian Dollar \$ 1=1.40; **p.c.i:** \$ 20,000; **President:** Bernard Dowiyogo.

Nauru is a small island in the central Pacific,

just 42 km. south of the equator. It is an oval-shaped coral island of approximately 20 km in length, surrounded by a reef which is exposed at low tide. Nauru became an independent republic on Jan. 31, 1968. It has an 18-member Parliament, elected on a 3-yearly basis.

About four-fifths of Nauru is phosphate-bearing rock. It is the only export. It is estimated that the phosphate deposits will be exhausted by 1995-'97.

Mission in India: Consulate General of the

What is in store for us ?

The UN has a sad story to tell us about the 47 least developed countries, which are fighting a losing battle for survival.

With 10 per cent of the world's population, the 47 LDCs earn 0.1 per cent of the world's income. Their share of world trade has declined from 0.6 per cent in 1980 to 0.2 per cent in 1992. Per capita incomes have also fallen.

The 1995 World Economic and Social Survey released in June 1995 said the highest Third World growth rates for 1995 would come from 15 developing economies: China, Vietnam, Singapore, Thailand, Malaysia, South Korea, Indonesia, Taiwan, Papua New Guinea, Myanmar, Sri Lanka, Tunisia, Uganda, India and the Philippines, in descending order.

Their forecast growth ranges from 10 to 5.8 per cent, compared with a world economy which has been growing at the rate of about three per cent annually.

The high-performing East Asian economies - including South Korea, Taiwan, Malaysia, Hong Kong, Singapore and China - registered average per capita income growth of about 5.5 per cent per year between 1965 and 1990.

This does not mean that all is well with the developing world. The 47 LDCs present a dismal picture. However, the UN predicts that Third World economies will continue to grow by about five per cent annually through 1996 and for the fifth successive year. This must be seen against the average growth of 3.0 per cent a year during the 1980s.

Another interesting fact is that, as in past years, the rapidly growing Third World economies are heavily concentrated in just one region: Asia.

The favourable factors helping Asia are high rates of savings, growing investments by the private sector and booming intra-regional trade.

Republic of Nauru, C-5/4, Safdarjung Development Area, New Delhi-110016. Tel: 667977.

Nepal

((Kingdom of Nepal) Sri Nepala Sarkar; **Cap:** Kathmandu; **Area:** 147,181 sq.km.; **Pop:** 21.9m.; **Lang:** Nepali, Maithiri, Bhojpuri etc.; **Literacy:** 25.6%; **Rel:** Hinduism, Buddhism, Islam; **Currency:** Nepalese Rupee, US \$1=49.40; **p.c.i.:** \$170; **Head of State:** King Birendra Bir Bikram Shah Dev; **PM:** Sher Bahadur Deuba.

The Kingdom of Nepal (Nepal Adhirajya) is a land-locked Asian country in the Himalaya mountain range. It is bounded on the north by Tibet, on the east by Sikkim and West Bengal, on the south and west by Bihar and Uttar Pradesh. There are 3 geographical regions: The fertile Tarai plain in the south; a central belt containing the Mahabharat Lekh and Churia Hills and the basins of the Inner Tarai; and the Himalayas in the north.

History: From 1846 to 1951 Nepal was virtually ruled by the Rana family, a member of which always held the office of prime minister, the succession being determined by special rules. The last Rana prime minister resigned in Nov. 1951. The 15 feudal chieftanships were integrated into the kingdom on 10 April 1961.

Following pro democracy demonstrations on 16 April 1990 King Birendra dismissed the government and proclaimed the abolition of the panchayat system of nominated councils. On 9 November 1990 the King proclaimed a constitution which relinquished his absolute powers.

Under the constitution of 9 Nov. 1990 Nepal became a constitutional monarchy based on multi-party democracy. Parliament has 2 chambers: a 205-member House of Representatives (Pratinidhi Sabha), of which 10 members are nominated by the king.

Elections were held on 15 Nov. 1994. The electorate was 12.3m.; turn-out was 58%. 24 Parties contested. The Communist Party of Nepal-United Marxist-Leninist Party (CPN-UML) won 88 seats, the Nepali Congress, 75, and the National Democratic Party, 20. A 15-member CPN-UML government was formed.

On 13 June 1995 King Birendra dissolved the parliament and announced the mid term poll on 23 November 1995 as proposed by the then Prime Minister Manmohan Adhikary. But on 28 August 1995 the Supreme Court in its verdict reinstated the lower house of the parliament and also cancelled the scheduled mid-term election. On Sept. 12, 1995, a five-member coalition government, under Sher Bahadur Deuba of Nepali Congress Party was sworn in.

National Flag: Two triangular parts of red,



with a blue border all round, bearing symbols of the moon and the sun in white.

National Anthem: 'Sri man gumbhira nepali prachanda pratapi bhupati' ('May glory crown our illustrious sovereign, the gallant Nepalese'); words by C. Chalise, tune by B. Budhapirithi.

The country is administratively divided into 14 zones, subdivided into 75 districts and over 3,500 villages.

Economy: With an inhospitable terrain, comprising isolated valleys and very high mountains, Nepal is among the least developed countries in the world. In 1990, according to estimates, Nepal's gross national product (GNP) per head was US \$180, which was among the 12 lowest in the world. GDP in 1992: Nepalese Rs.30,745 m. The rupee was made fully convertible in Feb. 1993.

Much of the country is forested and too steep for cultivation, yet in 1991 about 91% of the labour force were engaged in agriculture, forestry and fishing. This sector contributed almost 59% of Nepal's GDP and provides an estimated 60% of export earnings. Forest cover has been reduced from 60% of the land area to around 30% since the early 1950s, mainly because of the rapid increase in Nepal's population. In 1984 a programme of forest development and rehabilitation was begun, mainly financed by the World Bank.

Industry and Trade: Industry contributes about 10% of Nepal's GDP. Its major trading partner is India. Almost all the Nepal's imports pass through the Indian port of Calcutta. The principal articles of Nepal's export are food grains, jute, timber, oilseeds, ghee (clarified butter), potatoes, medicinal herbs, skins and cattle. The chief imports are textiles, cigarettes, salt, petrol and kerosene, sugar, machinery, medicines, boots and shoes, paper, cement, iron, steel and tea.

In 1991 there were 2,322 post offices. Number of telephones (1992) was 67,100.

Tourism: Tourism is the second largest industry. It is being developed by the construction of new tourist centres in the Kathmandu valley. Regular air services link Kathmandu

with Pokhara Lake. Major tourist attractions include Lumbini, the birthplace of Buddha, and the Himalaya mountain range including Mount Everest, the world's highest peak. Nepal received 3.3 lakh tourists in 1992, of whom 30 per cent came from India.

Mission in India: Royal Nepalese Embassy, Barakhamba Road, New Delhi - 110 001. Tel: 3329969.

Consulate: 19, Woodlands, Sterndale Road, Calcutta - 700 027. Tel: 452024.

The Netherlands

(Kingdom of the Netherlands) Koninkrijk der Nederlanden; **Cap:** Amsterdam (Seat of Govt: The Hague); **Area:** 41,160 sq.km; **Pop:** 15.5 m.; **Lang:** Dutch; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Guilder. \$1= 1.61; **p.c.i:** \$ 20,080; **Head of State:** Queen Beatrix Wilhelmina Armgard; **PM:** Willelm Kok.

The Kingdom of the Netherlands in North West Europe, on North Sea comprises the Netherlands and Antilles. The country is plainland with an average height of 11 m. above sea-level. Much of the land, however, is below sea-level and is protected by dykes, which extend for some 2400 km.

Agriculture has been mechanised and devel-

Floral Dutch

Every Dutchman is believed to buy flowers at least once a week.

No wonder over 70 per cent of the floral trade in the world goes on in The Netherlands. And, 30 to 40 per cent of the flowers traded in The Netherlands are consumed within the country.

It is estimated that there are about 20,000 growers, 6,000 wholesalers and 10,000 retailers and landscape contractors in the ornamental horticulture sector largely dealing in flowers and indoor plants.

Almost all of the floriculture products in the country are sold through one of the 10 auction houses in The Netherlands. The Dutch auction houses are 50 to 100 years old.

The Dutch export flowers to other European markets.

The most famous products are bulbs and tulips, grown in the Haarlem area, and in the land between Haarlem, Leiden and The Hague. There is artificial cultivation in hot houses too - delicate flowers such as pinks, azaleas and orchids.

oped. Crops: Grains, potatoes, sugarbeets, fruits, flowers. Foodstuffs form the largest industrial sector. Dairy products account for one-quarter of exports. Other major industries include chemicals, metallurgy, machinery, electrical goods and tourism. Amsterdam is famous as world centre for diamonds, precious metals and art treasures. Rotterdam, along the Rhine handles the most cargo of any ocean port in the world.

Mission in India: Royal Netherlands Embassy, 6/50 F, Shantipath, Chanakyapuri, New Delhi - 110 021. Tel: 6884951; Fax: 688 4956.

Consulates: The International, 3rd Floor, 10 M. Karve Road, Church Gate, Bombay; Tel: 2016846; Fax: 2069436.

31, Netaji Subhas Road, Calcutta. Tel: 2208515; Fax: 2481614.

Catholic Centre, 64 Armenian Street, Madras - 600 001; Tel: 585829; Fax: 580245.

Dutch territories

Aruba The island (area: 193 sq.km., **Pop:** 68,900) which lies in the southern Caribbean formed part of the Dutch West Indies from 1823 and part of the Netherlands Antilles from 1845. Achieved internal self-government in 1954. Aruba was constitutionally separated from the Netherlands Antilles from Jan. 1, 1986, and full independence has been promised after a 10-year period. **Capital:** Oranjestad. **Minister Plenipotentiary:** C.A.S.D. Wever.

The Netherlands Antilles (area: 800 sq.km. **Pop:** 191,300) comprise two groups of islands in the West Indies, the Leeward group (Curacao and Bonaire) and the Windward Islands. In 1954 they became an integral part of the Netherlands but are fully autonomous in internal affairs. **Capital:** Willemstad; **Minister Plenipotentiary:** E.A.V. Jesurun.

New Zealand

Cap: Wellington; **Area:** 269,057 sq.km (excluding dependencies); **Pop:** 3.6 m.; **Lang:** English and Maori dialect; **Literacy:** 99%; **Rel:** Christianity; **Currency:** New Zealand Dollar \$1=1.57; **p.c.i:** \$12,680; **Head of State:** Queen Elizabeth II; **Gov.Gen:** Dame Catherine Tizard **PM:** Jim Bolger.

New Zealand, lying in the South Pacific Ocean with Tasman Sea on the west, consists of two large islands, North Island and South Island and numerous small islands. It gained dominion status in 1907.

The major crops are wheat, maize, oats and barley. Minerals include coal, oil and gold. Primary industries are dairying, meat and wool

ulp and paper industry is highly developed. on, steel, aluminium, textiles, transport equipment are other industries.

Mission in India: High Commission for New Zealand, 50 N, Nyaya Marg, Chanakyapuri, New Delhi-110021. Tel: 688 3170; Fax: 687 2317.

Overseas Territories: The Cook Islands and Niue are self-governing territories overseas and Ross Dependency and Tokelau are territories overseas coming within New Zealand's jurisdiction.

The Cook Islands: (241 sq.km.) were placed under New Zealand administration in 1901 and they achieved self-governing status in association with New Zealand in 1965; Pop: 18,600.

Niue (259 sq.km.), formerly administered as part of Cook Islands, achieved self-governing status in association with New Zealand in 1974. Niue is the largest uplifted coral island in the world. Pop: 2200.

The Ross Dependency: (414,400 sq.km.), an Antarctic region, was placed under New Zealand administration in 1923.

Tokelau: (10 sq.km.) was placed under New Zealand administration in 1925.

Nicaragua

(Republic of Nicaragua) Republica de Nicaragua; **Cap:** Managua; **Area:** 130,000 sq.km; **Pop:** 4.4m.; **Lang:** Spanish and English; **Literacy:** 57%; **Rel:** Christianity; **Currency:** Cordoba (NIO) \$1=6.46.; **p.c.i:** \$425; **President:** Mrs. Violeta Barrios de Chamorro.

The republic of Nicaragua is located in the heart of Central America. It is the largest but most sparsely populated of the Central American nations. It became an independent state in 1838. The Somoza dynasty ruled Nicaragua from 1933 to 1979.

The third Somoza was overthrown by armed revolution led by Sandinista National Liberation Front, which emerged as the leading political force in the election held in 1984. But contra rebels, comprising mainly former members of Nicaraguan National Guard and supported by the U.S. waged a nine-year war against the government led by Daniel Ortega. About 30,000 people were killed. With the defeat of Ortega in the elections held in 1990, the civil war came to a close.

Agriculture is the principal source of national income. The most important agricultural products are cotton, coffee, sugar-cane, rice, bananas, maize and fruit. Chief industries are food processing, chemicals, matches, leather, beer and plastic goods. Gold, copper, silver, lead and zinc are found.

Mission in India: Embassy of the Republic of



Nicaragua, D-6/13 C, Vasant Vihar, New Delhi-110 057. Tel: 671274.

Niger

(Republic of Niger) Republique du Niger; **Cap:** Niamey; **Area:** 1,267,000 sq.km; **Pop:** 9.2 m.; **Lang:** French, Hausa and Djerna; **Literacy:** 28%; **Rel:** Islam and Tribal; **Currency:** Franc CFA, \$ 1=504; **p.c.i:** \$ 310; **President:** Mahamane Ousmane; **PM:** Souley Abdoulaye

The Republic of Niger lies in the heart of West Africa.

Formerly part of French West Africa, Niger became fully independent on Aug. 3, 1960.

A new constitution was adopted by referendum in Dec. '92. Presidential elections were held in Feb., '93. In the election for a new 83-member National Assembly, the Alliance of Forces for Change coalition gained 50 seats, and the National Movement for Development Society, 29.

It is an agricultural country with very limited resources. The principal crops are millet, peanuts and cotton. Cattle-breeding is the next most important occupation of the people. Minerals: uranium, coal, iron.

Nigeria

(Federal Republic of Nigeria); **Cap:** Abuja; **Area:** 923,768 sq.km; **Pop:** 111.7 m.; **Lang:** English, Hausa, Ibo and Yoruba; **Literacy:** 51%; **Rel:** Islam, Christianity and Tribal; **Currency:** Naira. \$1=22; **p.c.i:** \$315; **Head of Interim Govt:** Gen. Sani Abacha.

The Federation of Nigeria on the south coast of West Africa is black Africa's most populous nation.

Nigeria became an independent state in 1960 and a republic within the Commonwealth in Oct. 1963. Nigerians have seen seven coups in 32 years.

The chief agricultural products are cocoa, palm oil, palm kernels, grains, fish, cotton,

rubber, peanuts and skins. Tin, lead, columbite, coal and iron ore are the chief minerals. There is extensive exploitation of the forest for various timbers. Timber, hides and skins, cocoa and palm products are major export items. Crude oil exports have become important since 1970. Industry is diversified, beer, cement, textiles, cigarettes, assembly of vehicles, soap, canned food and aluminium products being the main items. Two petrochemical plants were commissioned in 1988.

Election held on June 12, 1993 for new President was annulled by Gen. Ibrahim Babangida, military ruler since 1985. Billionaire publisher Moshood Abiola, who claimed victory in the aborted election went in a self-imposed exile in London. Under internal pressure, Babangida relinquished power on Aug. 26, and named Shonekan as the new civilian President. In Nov. 93, military rule was back, with the Defence Minister Gen. Abacha as the new leader. Abiola who emerged from hiding and declared himself president, was arrested in June '94. Former President Olusegun Obasanjo has been sentenced to life in prison. In June '95, the military government lifted a 2-year ban on political parties but didn't give a date for return to civilian rule.

Mission in India: High Commission of the Federal Republic of Nigeria, 21 Olof Palme Marg, Vasant Vihar, New Delhi-110057. Tel: 687-6646; Fax: 687 6641.

Norway

(Kingdom of Norway) Kongeriket Norge; **Cap:** Oslo; **Area:** 323,895 sq.km; **Pop:** 4.3 m.; **Lang:** Norwegian; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Krone. \$1=7.45 p.c.i: \$23,120; **Head of State:** King Harald V; **PM:** Ms. Gro Harlem Brundtland.

Norway in North-West Europe occupies the western part of the Scandinavian Peninsula.

Norway is known as the *Land of the Midnight Sun*, because in North Cape area, the sun does not set from middle May until the end of July, nor does it rise above the horizon from the end of November to the end of January. Nearly 70% of Norway is uninhabitable and covered by mountains, moors, glaciers and rivers.

Norway is a constitutional and hereditary monarchy.

The important agricultural products are barley, oats, rye, potatoes, fruits and dairy products. Fishing is a major occupation with immense quantities of cod, herring, whale, tuna, seal, mackerel and salmon. Forests provide raw material for many industries. Min-

ing is an important industry. There is very little coal but plenty of hydro-electric power to run big factories. High degree of industrialization, the base for which was provided by abundant hydroelectric resources, has given Norwegians one of the highest living standards in the world. The principal manufactures are food products, machinery and metal work, wood, paper and pulp, aluminium electro-chemical products, ships and transportation equipment. Norway possesses a large merchant marine.

Dependencies of Norway: Svalbard (62,700 sq.km), Jan Mayen (380 sq.km.), Bouvet Island (60 sq.km.), Peter I Island (249 sq.km.), and Queen Maud Land.

Mission in India: Royal Norwegian Embassy, Shantipath, Chanakyapuri, New Delhi-110021. Tel: 6873532; Fax: 6873814.

Consulate General: Naoraji Mansion, 31 Nathelal Parekh Marg, Bombay-400 001; Phone: 242042.

Consulate: 230 A, JC Bose Road, Calcutta. Tel: 2474757.

Consulate: Harbour Gate, 44/45, Rajaji Salai, Madras-600 001. Phone: 517953.

Oman

(Sultante of Oman) Saltanat' Uman; **Cap:** Muscat; **Area:** 300,000 sq.km; **Pop:** 2.2m.; **Lang:** Arabic; **Literacy:** 20%; **Rel:** Islam; **Currency:** Omani rial. \$1=0.39 p.c.i: \$5900; **Head of State & Govt:** Sultan Qabus Bin Said.

The Sultanate of Oman, formerly Muscat & Oman, occupies the south-eastern part of the Arabian Peninsula. Oman adopted the present name in 1970.

The Sultan escaped unhurt in a major car accident on Sept. 12, 1995 in Muscat. His deputy PM Qais Bin Abdulmonim Al-Zawawi died in the tragedy.

Oil is the major source of income. It forms 95% of the exports. Where there is water, the land is very fertile. The Batina coastal plain is famous for its dates, fruits and grains. Major industries are petroleum drilling, fishing and construction.

There are about 400,000 foreign workers. Expectation of life was 68 years in 1990.

The Kuria Muria Islands, formerly part of Aden, were given to Oman by the British in 1967.

Mission in India: Embassy of the Sultanate of Oman, 16, Olof Palme Marg, Vasant Vihar, New Delhi-110057. Tel: 670215; Fax: 6876478.

Consulate: 21 Jolly Makers Apts, 3 Cuffe Parade, Colaba, Bombay-400 005.

Pakistan

((Islamic Republic of Pakistan) Islam-i Jamhuriya-e Pakistan; **Capital:** Islamabad; **Area:** 796,095 sq.km; **Population:** 140.5m.; **Lang:** Urdu (Official), Punjabi, Sindhi, Pushtu, Baluchi, Brahvi, English; **Literacy:** 35%; **Rel:** Islam; **Currency:** Rupees, US \$1= 30.85 ; **p.c.i:** \$ 410 ; **President:** Farooq Ahmed Leghari; **PM:** Ms. Benazir Bhutto.

The Islamic Republic of Pakistan is bordered in the north-west by Afghanistan, north by the former USSR and China, east by India and south by the Arabian Sea.

History: The Muslim state that emerged from partition of British India on 14 August 1947 included an eastern wing comprising mainly the eastern half of Bengal province and parts of Assam.

For nine years Pakistan remained a dominion. It was proclaimed an Islamic republic on 23 March 1956. A federal parliamentary system functioned until Field-Marshal Muhammad Ayub Khan seized power in a coup in October 1958. Ayub proclaimed a presidential system in the constitution of 1962 and ruled until March 1969, when he was deposed by Gen. Yahya Khan.

In the first free elections in December 1970, Zulfikar Ali Bhutto's Pakistan People's Party dominated the west, while Sheikh Mujibur Rahman's Awami League swept the board in the east, winning 160 of the 162 seats.

East Pakistan proclaimed sovereignty and formed the People's Republic of Bangladesh on 26 March 1971. Civil war followed after Yahya, supported by Bhutto, ordered troops to arrest Mujib and put down the Bengali uprising. The east-west war ended in December 1971. Yahya handed over power to Bhutto, who ruled until



July 1977, before being overthrown after an opposition campaign against alleged rigging in general elections. Gen. Zia-ul-Haq took over initially to hold elections and transfer power to a civilian regime. But elections were twice postponed and Bhutto was tried for the murder of a political opponent and executed.

Gen. Zia was killed in a plane crash on August 17, 1988 and Senate Chairman Ghulam Ishaq Khan took over as Acting President. The country was placed under emergency rule.

In the general election held on November 16, 1988 the Pakistan Peoples' Party (PPP) led by Benazir Bhutto won the largest number of seats (92). Benazir assumed office as the PM on December 9. Ghulam Ishaq Khan was elected President on December 12.

Because of persistent differences with the Prime minister, President Ishaq Khan dismissed Benazir, dissolved the national assembly and ordered fresh elections on August 8, 1990. Nawaz Sharif of Islami Jamhoori Ittehad took over as Pakistan's 11th Prime Minister on November 5. However, the power struggle between the two resulted in the dismissal of Sharief in 1993. The Supreme Court annulled the dismissal leading to constitutional impasse. In an army-brokered deal, Moen Qureshi, a former World Bank Vice President, took over as caretaker Prime Minister in July. In the elections held in October, 1993, PPP returned to power and Ms. Bhutto took over as PM once again.

Ethnic and communal conflict that has been raging in Karachi intensified in 1995. The Urdu-speaking Muhajirs are demanding equal rights and autonomy.

National Flag: Green, charged at the centre, with a white crescent and white 5-pointed star, a white vertical stripe at the mast to one-quarter of the flag.

National Anthem: 'Pak sarzamin shadbad' (Blessed be the sacred land); words by A. Hafeez Jullandhari, tune by A. Ghulamali Chagla.

Provinces: Pakistan comprises the four provinces of Sind, Baluchistan, Punjab and the NW Frontier Province, plus the Federal capital and tribal areas under federal administration.

Air traffic is up 6 percent

World airports saw a steady 6 percent rise in passenger traffic in the first half of 1995, with Europe and Pacific Rim countries leading the way.

According to the Geneva-based Airports Council International, cargo movement through the 408 airports making returns for the period showed even stronger growth - a 10 percent increase over the first six months of 1994.

O'Hare Airport in Chicago consolidated its position as the world's busiest passenger airport with 32.4 million people passing through, while Memphis, Tennessee, retained the top cargo spot.

Names- Old and New

Countries and Cities have changed their names over the years

New Names	Old Names		
BANJUL	Bathurst (Gambian Capital)	KINSHASA	Leopoldville
BEIJING	Peking	KOREA	The Hermit Kingdom
BELIZE	British Honduras	LAOS	Lanxang (The land of a million elephants)
BENIN	Dahomey	LESOTHO	Basutoland
BOTSWANA	Bechuanaland	MALAWI	Nyasaland
BURKINAFASO	Upper Volta	MALABO	Santa Isabel (Cap. of Equa-Guinea)
CAMBODIA	Kampuchea; Khmer	MYANMAR	Burma
DJIBOUTI	French Somaliland, French Territory of Afars & Issas	NAMIBIA	South West Africa
ETHIOPIA	Abyssinia	NAURU	Pleasant Island
GHANA	Gold Coast	SRI LANKA	Ceylon
GUYANA	British Guiana	St. PETERSBURG	Leningrad
HARARE	Salisbury	SURINAME	Dutch Guyana
INDONESIA	Dutch East Indies	TAIWAN	Formosa
IRAN	Persia	TASMANIA	Van Diemen's Land
IRAQ	Mesopotamia	THAILAND	Siam
ISTANBUL	Constantinople, Byzantium	TOGO	Togoland
		TUVALU	The Ellice Islands
		VANUATU	The New Hebrides
		YANGON	Rangoon
		ZAIRE	Congo
		ZAMBIA	Northern Rhodesia
		ZIMBABWE	Southern Rhodesia

The tribal areas (Khyber, Kurram, Malakand, Mohmand, North Waziristan, South Waziristan) are administered by political agents responsible to the federal government.

Kashmir: Pakistan controls the northern and western portions of Kashmir, an area of about 84,160 sq km with a population of about 2.8 m. in 1985. The Pak-occupied Kashmir has its own Assembly, its own Council, High Court and Supreme Court. There is a Parliamentary form of Government with a Prime Minister as the executive head and the President as the constitutional head. The seat of government is Muzaffarabad.

The Pakistan Government is directly responsible for Gilgit and Baltistan (the north).

Economy: Agriculture (including forestry and fishing) is the mainstay of Pakistan's economy, employing about 51% of the working population and providing 23.7% of the country's gross domestic product (GDP).

The entire area in the north and west is covered by great mountain ranges. The rest of the country consists of a fertile plain watered by 5 big rivers and their tributaries. Agriculture is dependent almost entirely on the irrigation system based on these rivers. The main crops are wheat, cotton, maize, sugar-cane and rice,

while the Quetta and Kalat divisions (Baluchistan) are known for their fruits and dates. Pakistan is self-sufficient in wheat, rice and sugar.

Industry and Trade: Industry employs about 10% of the population. Manufacturing contributes about 17% to GNP. Refined sugar, vegetable products, jute textiles, soda ash, sulphuric acid, caustic soda, chip board and paper board, bicycles, cotton cloth, cotton yarn, cement and steel. Main exports are cotton cloth, cotton yarns, rice, leather, carpets and tapestries.

Mission in India: Embassy of the Islamic Republic of Pakistan, 2/50-G, Shantipath Chanakyapuri, New Delhi - 110 021. Tel: 600 601. Fax: 6372339.

Pakistan's Consulate in Bombay was closed on March 20, 1994.

Palau

(Republic of Palau or Belau). Cap Koror; Area 1,632 sq.km. Pop 18,000. Lang Palauan and English; Rel Christianity; Currency US dollar. President: Kuniwo Nakamura.

An archipelago in the Western Pacific, Palau consists of 26 islands and over 300 islets.

1914 Japan occupied the islands, which became part of the UN Trust Territory of the Pacific Islands created in 1947, and administered by the USA. Proclaimed an autonomous republic in 1981, a freely associated state in 1992, and an independent republic on Oct 1, 1994. A self-governing state, Palau became the 185th UN member on 15 Dec 1994. A new capital is being built in eastern Babelthuaap.

Natural resources: Fisheries, mainly tuna.
Tourism is a major industry. About 40,000 visitors a year.

Palestine

The historic declaration of an independent Palestine comprising West Bank of river Jordan and Gaza Strip was made by Yassar Arafat, leader of Palestine Liberation Organisation (PLO) on Nov. 15, 1988 in Algiers. Palestine's headquarters were in Tunis until Arafat came to Jericho in 1994.

PLO was founded in 1964 to express the nationalist aspirations of Palestinian Arabs. In 1974, the UN granted it permanent observer status and in 1976, PLO became a regular member of the Arab League.

About 80 nations including India immediately recognised the new nation, which was born out of struggle extending over forty years.

However, in Israel, the government of the right wing Likud Bloc and the left leaning Labour Party with Yitzhak Shamir as Prime Minister still refused to recognise PLO as the legitimate representative of the Palestinian people.

In the 44 year old Arab Israeli conflict, the demand of Palestinians had been an independent homeland in the West Bank and Gaza with capital in Jerusalem.

In a major breakthrough in Aug. end, 1993, Israel approved limited Palestinian autonomy. Israel would withdraw from Gaza Strip and Jericho. Early September, PLO and Israel announced mutual recognition. On 13th, the historic accord was signed in Washington. On May 13, 1994, Israel handed over Jericho to Palestinian police, and on July 5, Arafat established a Palestinian self government there.

Mission in India: Embassy of State of Palestine, D-1/27, Vasant Vihar, New Delhi-110 057. Tel: 676605; Fax: 687-2943.

Panama

(Republic of Panama) Republica de Panama.
Cap: Panama City; **Area:** 77,082 sq.km; **Pop:** 2.6 m.; **Lang:** Spanish, English; **Literacy:** 87%.
Rel: Christianity. **Currency:** Balboa, \$1 = 1, p.c.i.



\$2,440; **President:** Ernesto Perez.

Panama, the southern-most of the Central American nations, is a narrow strip of territory at the southern end of the isthmus separating North and South America. Panama declared its independence from Colombia on Nov. 3, 1903.

In 1979, Panama assumed sovereignty over what was previously known as the Panama Canal Zone and now called the Canal Area.

Control over the Panama Canal, linking the Atlantic and the Pacific oceans, had long been a bone of contention between the US and Panama. In 1978, it was agreed that the US will relinquish all its claims in favour of Panama at the close of the century.

The soil is extremely fertile but nearly one-half of the land is uncultivated. The chief crops are bananas, coffee, pineapple, cocoa and cereals. Shrimp fishing is important. There are excellent timber resources, notably mahogany. **Industry:** Oil refining, sugar, food processing, international banking.

Mission in India: Embassy of Panama, 200, Jor Bagh, New Delhi-110 003. Tel: 4642518; Fax: 4642350.

Consulate General: Maker Arcade, Cuffe Parade, 53, Ground Floor, Bombay 400005. Tel: 21-5585.

Papua New Guinea

Cap Port Moresby **Area** 462 840 sq.km **Pop.** 4.3 m. **Lang:** English, Melanesian and Papuan languages **Literacy** 52% **Rel:** Christianity and Tribal **Currency** Kina \$1=118 p.c.i. \$ 950 **Gov. Gen.** Wiwa Korowi **PM** Sir Julius Chan

Papua New Guinea comprises the eastern section of the island of New Guinea and adjacent islands.

It is a region of lofty mountains and swampy plains. The surrounding islands are largely of volcanic or coral origin.

The population consists of dark skinned Melanesians, who live mostly along the coasts and woolly haired Papuans who inhabit the interior. There are more than 800 tribes, many

living in almost complete isolation with mutually unintelligible languages. Became independent on Sept. 16, 1975, ending a U.N. trusteeship under the administration of Australia.

All citizens above 18 are eligible to vote and stand for election.

Despite peace talks between the government and the secessionist Bougainville Revolutionary Army, fighting has continued.

Agriculture occupies the majority of the population, most of whom are subsistence farmers. Sago, yams, taro, manioc, and sweet potatoes are the main food crops. Cash crops include coconuts, cocoa, coffee and rubber. The country has large deposits of copper, gold, silver and oil. Nevertheless, Papua New Guinea remains a poor country, still receiving aid from Australia. The massive mining royalties, estimated at \$2 billion in the next year, also support economy.

Industries: Food processing, beverages, tobacco, timber products.

Paraguay

(Republic of Paraguay) Republica del Paraguay; **Cap:** Asuncion; **Area:** 406,752 sq km; **Pop:** 5.0 m.; **Lang:** Spanish, Guarani; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Guarani, \$1= 1,955; **p.c.i:** \$1,500; **President:** Juan Carlos Wasmosy.

Paraguay is one of the two landlocked countries of South America surrounded by Bolivia, Brazil and Argentina. The Paraguay river is navigable for some 3000 km. and steamers come up to Asuncion which is the chief port of the state. This makes up for lack of coastline or sea harbours. Paraguay gained independence from Spain on May 14, 1811.

Gen. Alfredo Stroessner ruled from 1954 to 1989, until ousted in a military coup.

About 75 per cent of the population is engaged in agriculture and allied pursuits with cattle breeding as an important occupation. The most important agricultural crops are maize, cotton, beans, tobacco and citrus fruits. The timber resources of the state are enormous. The chief exports are beef and other food products, quebracho (hard wood), hides and skins.

Industries: Food processing, wood products, textiles, cement.

Peru

(Republic of Peru) Republica del Peru; **Cap:** Lima; **Area:** 1,281,215 sq.km; **Pop:** 23.8 m.; **Lang:** Spanish, Quechua, Aymara; **Literacy:** 85%; **Rel:** Christianity; **Currency:** Sol, \$1=2.24 p.c.i.; **\$1070;** **President:** Alberto Fujimori; **PM:** Dante Cordova.

Peru is on the Pacific coast of S. America. It was originally the seat of the famous Inca (Red Indian) Empire. It became independent on 28 July, 1821.

The Andes mountains dominate Peru. Some of the rarest species of animals, the vicuna, the llama, the alpaca and the cross-breed paco-vicuna are found in the Andean mountains where they are now protected.

The leading agricultural products are cotton, wool, sugar, coffee, rice, beans and potatoes. Corn which is native to Peru is the staple food of the Indians, who also cultivate alfalfa. Fishing industry is well developed and Peru is the world's most important producer of fishmeal. The country, rich in minerals, is one of the leading producers of silver. Some of the biggest copper mines in the world are located in Peru. The chief exports are cotton, fish products, petroleum, sugar and iron ore.

Mission in India: Embassy of Peru, D 6/13C, Vasant Vihar, New Delhi-110 057. Tel: 674085. Fax: 6876427.

Consulate: 6K Dubash Marg, Bombay-400023. Phone: 2871084

Philippines

(Republic of the Philippines) Republika ng Pilipinas; **Cap:** Manila. **Area:** 299,404 sq.km. **Pop:** 67.6 m.; **Lang:** Filipino, English and

The dying forests

Europe's forests continue to be defoliated because of high pollution, drought, insects and other threats, according to an annual U.N. survey of conditions in 32 countries.

Of the 650,000 trees surveyed in Europe, more than one-fourth had lost a major amount of leaves, the U.N. Economic Commission for Europe reports. A tree is classified as significantly damaged if it has lost 25 per cent or more of its leaves.

The number of seriously damaged trees was up more than 4 per cent over the 1993 U.N. survey. The primary reason for continued deterioration was air pollution, the study concluded.

The survey indicates that forest damage continues to be a serious problem in Europe as a substantial proportion of trees was defoliated and/or discoloured.

Spanish: Literacy: 88%, Rel: Christianity and Islam. Currency: Peso. \$1=25.90. p.c.i: \$850; President: Fidel V. Ramos.

An archipelago of about 7100 islands, the Republic of the Philippines lies in the western Pacific Ocean, over 800 km. off the southeast coast of Asia. The principal islands are Luzon in the north and Mindanao in the south.

The Philippine islands, discovered by Magellan in 1521, were conquered by Spain in 1565. The islands, named for King Philip II of Spain, were ceded to USA in 1898. Became completely independent in 1946.

Main agricultural crops of the Philippines, the home of the Green Revolution, are rice, maize, sugar, tobacco, coconut, pineapple and bananas.

Manufacturing is a major source of economic development. Industries include textiles, rubber products, oil refinery, pharmaceuticals, chemicals, electronics assembly, furniture, cigarettes, paper, metal, glassware and food products.

The Philippines is rich in natural resources and has iron, silver, gold, chromite, manganese and copper deposits in commercial quantity. It has also marble quarries, forests and extensive fishing grounds. All natural resources belong to the state.

Ferdinand Marcos was President from 1965 to '86. Corazon Aquino succeeded him.

The country's first free presidential elections in two decades were held in May, 1992. The U.S. vacated the Subic Bay Naval Station at the end of the year.

The government signed a ceasefire agreement with Muslim separatist guerrillas in Jan., 1994.

Switzerland has approved the transfer to the Philippines of nearly \$500 m. in Swiss bank accounts of the late Philippines ruler Ferdinand Marcos.

Mission in India: Embassy of the Philippines, 50-N, Nyaya Marg, Chanakyapuri, New Delhi-110021. Tel: 601120; Fax: 687 6401

Consulates General: Industry House, 159 Churchgate Reclamation, Bombay-400 020. Tel: 2020375, 2024792

Mercantile Buildings (2nd Floor), Block F-10, Lal Bazaar, Calcutta 700001. Tel: 286962, 2287102.

Arti Arcade, 86 Dr. Radhakrishnan Road, Madras. Tel: 2350856, 2351016

Poland

(Republic of Poland) Rzeczpospolita Polska; Cap: Warsaw. Area: 312,677 sq.km. Pop: 38.4 m. Lang: Polish; Literacy: 98%, Rel: Christianity. Currency: Zloty. \$1=2.40. p.c.i: \$1,960; President: Lech Walesa. PM: Jozef Olesky.



A Republic of upper central Europe, Poland's history goes back to the tenth century A.D. Partitioned in the 18th century, it became independent in 1918. The Nazi invasion of Poland in 1939 initiated World War II. The country was liberated again in 1944.

Solidarity movement led by Nobel Prize winner Lech Walesa played an important part in bringing down the communist dictatorship in 1989. And the communist party was dissolved in 1990.

Thirty-two percent of the population is engaged in agriculture. Chief crops are rye, wheat, oats, potatoes, sugar beets, tobacco and flax. The country has vast resources of mineral wealth, particularly coal, besides iron, lignite, natural gas, lead and zinc. Textiles, chemicals and metallurgy are old, established industries. New industries include automobiles, tractors, heavy machinery, ship-building and aircraft manufacturing. Main exports are ships, coal, steel and clothing. Wide ranging measures to convert the economy into a market oriented system were introduced in 1989.

In 1991, the government announced the most ambitious privatization plan of any country.

In Sept. '93 elections, former communists and other leftists won a majority of seats in the lower house.

Mission in India: Embassy of Poland, 50-M, Shantipath, Chanakyapuri, New Delhi-110021. Tel: 608321; Fax: 6872033.

Consulates: Manavi Apartments, 36 B. G. Kher Marg, Bombay-400 006; Tel: 3633863, 3634678.

Calcutta: 3-B, Albert Road, Calcutta-700017. Tel: 2277144

Portugal

(Republic of Portugal) Republica Portuguesa; Cap: Lisbon. Area: 92,072 sq.km. Pop: 9.8 m. Lang: Portuguese. Literacy: 83%, Rel: Christianity. Currency: Escudo \$1=148.91. p.c.i: \$7,450; President: Dr. Mario Soares. PM: Anibal Cavaco Silva.

Portugal is a small rectangular territory in the

Unveiling man's origins

Toolmaking, once thought to be a skill special to the Homo genus, began long before its emergence, perhaps by half a million years, recent discoveries seem to indicate.

It is the stone tools found in the desiccated fossil fields of east Africa that have thrown new light on the theory of the origin of man. These tools found in Ethiopia have been dated at 2.6 million years old, making them the earliest known artifacts created by humans or their direct ancestors.

Simple cobbles fractured and flaked for use in scraping and cutting, the tools were made and gripped by hands apparently well evolved toward the hands of humans and conceived by minds less far along the evolutionary path. These were toolmakers, though, probably adjusting to new environmental conditions, a cooler climate and changing vegetation, by trying out new means of getting and processing food. Whoever they were, whatever their needs, they certainly were innovators back near the beginning of the human experience.

Fossils of the early human ancestors themselves have yet to be identified in the tool-bearing sediments of the Ethiopian site. But the scientists reporting the new data said it was a reasonable assumption that the tools could have been made by more primitive members of the human lineage, the australopith-ecenes, the only hominids known to have existed at that time.

The existence of some early stone tools in the ground near the Gona River had been known since the 1970s. Preliminary analysis indicated that they were probably much older than any previously discovered artifacts, but nothing was firm. When new explorations in the Gona region over the last three years uncovered thousands of these crude tools, more precise geological dating tests were conducted.

Sileshi Semaw, an Ethiopian archaeologist who revealed the test results at a meeting of the

American Association of Physical Anthropology in Oakland, California reported that Argon isotopic analysis and other evidence showed ages of 2.5 million to 2.6 million years for the sediments where the tools were found, with the true date probably being closer to the greater age.

In that case this collection of artifacts is the oldest known in Africa and thus the world. Tools discovered at Olduvai Gorge in Tanzania by Louis and Mary Leakey, the famous husband-and-wife team of fossil hunters, are about two million years old, and other recent finds in Kenya and Ethiopia have been determined to be several hundred thousand years older, but not as ancient as the Gona artifacts.

There was some controversy at the scientific conference. The stone tools of Gona were overshadowed by rancorous charges and counter-

charges touched off by Mr. Semaw's accusations of "a violation of professional ethics" by another research group that he said had invaded his site in October, 1994. The group, from the Institute of Human Origins in Berkeley, California, headed by Dr. Donald C. Johanson, discoverer of the celebrated Lucy fossils, flatly



Tool-making: as old as man

denied the allegations.

Dr. Jack W.K. Harris, who has explored the Ethiopian fossil beds for years and is now chairman of the Rutgers anthropology department, was among the first to find tools in the Gona Region, where he discovered scattered samples in 1976 and 1977. In 1992, he and Mr. Semaw conducted the first systematic surveys there, identifying 21 sites containing thousands of stone tools and ancient animal remains.

Dr. Craig Feibel, a Rutgers geologist, collected samples of volcanic ash for use in dating the material. Then Dr. Paul R. Renne, president of the Berkeley Geochronology Center in California, ran tests with a recently perfected geological dating technology known as argon-argon single crystal laser fusion.

southwest corner of the Iberian Peninsula.

Portugal was an independent kingdom from the 12th century. It became a republic in 1910.

The period 1932-68 saw a strong, repressive government headed by Premier Antonio de Oliveira Salazar.

The Atlantic archipelagoes of the Azores and of Madeira form autonomous but integral parts of the republic.

Nineteen per cent of the country is forest, where pine, oak, chestnut and cork grow in abundance. Winegrapes, olives, grains and potatoes are the principal agricultural products. The major minerals are coal, copper, kaolin, wolframite, lithium and titanium. Textiles, chemicals, paper, footwear and glassware are the principal manufactures. The main exports are wine, canned sardines, tuna, anchovies, resins and cork. Portugal is one of the leading producers of cork.

In 1989, a package of reforms that did away with the socialist economy was approved by parliament.

Mission in India: Embassy of Portugal, 13, Sundar Nagar, New Delhi-110003. Tel: 4601262; Fax: 4601252.

Consulate General: 73, Lake View Colony, Miramar, Panjim, Goa-403 001. Tel: 224233; Fax: 224007.

Overseas Territories

Macao

Cap: Macao; **Area:** 15.5 sq.km; **Pop:** 484,000; **Lang:** Portuguese and Cantonese; **Literacy:** 99% (excluding Chinese); **Rel:** Confucianism; **Currency:** Pataca. \$1 = 7.99; **p.c.i.:** \$ 13,527; **Governor:** Gen. Vasco Rocha Vieira.

Macao or Macau is a tiny Portuguese possession in South China, at the mouth of the Canton river. The territory consists of the Macao peninsula and the adjoining islands of Taipa and Coloane. Portugal granted it broad autonomy in 1976. In 1987 Portugal and China agreed that Macao would revert to China in 1999. China has permitted Macao to continue as an independent territory mainly because of the big entrepot trade it commands. Macao is a free market for gold and an infamous centre of smuggling and gambling.

The population is almost entirely Chinese. Industry, once restricted to matches and fireworks, now includes plastics, textiles, cameras, binoculars and such other consumer items. Cultivation is sparse. Only rice and vegetables are grown. Macao has an important fishing industry.

Azores Islands

Area: 2248 sq.km; **Pop:** 236,000; In the Atlantic; Partial autonomy was offered in 1976.



The Madeira Islands

Area: 795 sq.km.; **Pop:** 253,000; Off the North East coast of Africa. Autonomous Region since 1976.

Qatar

(State of Qatar) **Dawlet al-Qater. Cap:** Doha; **Area:** 11,437 sq.km; **Pop:** 513,000; **Lang:** Arabic, English; **Literacy:** 76%; **Rel:** Islam; **Currency:** Riyal (QAR) \$1 = 3.64; **p.c.i.:** \$16,240; **Head of State and Govt. (The Amir):** Sheikh Hamad bin Khalifah al Thani.

Qatar is a 160 km. long tongue of land jutting into the Persian (Arabian) Gulf. It is surrounded almost on three sides by the Persian Gulf. Saudi Arabia lies to the south.

Qatar declared its independence from Britain on Sept. 3, 1971.

It is an absolute monarchy. Oil revenues give sQatar a per capita income among the highest in the world.

Most of the population live in and around Doha, the capital. Immigrants from Pakistan, Iran and Oman now outnumber the native Qataris. Today the oil industry provides over 90% of the national income but employs only less than 5% of the population. Qatar is connected by road to the rest of Arabia and by air to the rest of the world. **Agriculture:** Cereals, fruits, vegetables, dates. **Industries:** fertilisers, steel, petrochemicals, cement.

Mission in India: Embassy of Qatar, G-5 Anand Niketan, New Delhi-110021. Tel: 6117241 Fax: 6886080.

Consulate: Bajaj Bhavan, Nariman Point Bombay-400 021; Phone: 2027192.

Romania

Cap: Bucharest; **Area:** 237,500 sq km; **Pop:** 22.8 m.; **Lang:** Romanian, Hungarian, German; **Literacy:** 96%; **Rel:** Christianity; **Currency:** Lei (plural Lei.) \$1 = 1,821; **p.c.i.:** \$1,090 (1992); **President:** Ion Iliescu; **PM:** Nicolae Vacaroiu

Romania lies in the south east of the central part of Europe.

Modern Romania was formed in 1859. In 1877, Romania proclaimed independence from Turkey, became an independent state in 1878, a kingdom in 1881 and a constitutional monarchy with a bicameral legislature in 1886. A People's Republic was proclaimed in 1947. In 1965, Romania became a socialist republic. It ended Communist dictatorship in 1989 by shooting long-time president Nicolae Ceausescu. National Salvation Front took over power in 1990.

Industry dominates Romanian economy. Heavy industries are predominated by drilling rigs for oil, equipment for oil refineries, petrochemical industry, cement, thermo and hydro electric power, diesel and electric locomotives of high capacity, engineering and consumer goods, etc.

Romanian agriculture recorded profound changes during the last three decades, beginning with the land reforms of 1945. Chief crops: grains, potatoes, vegetables, sunflower.

The exports are mostly made up of machines and equipment, chemical products, chemicals, fertilizers and industrial consumer goods.

Mission in India: Embassy of Romania, A-52, Vasant Marg, Vasant Vihar, New Delhi-110057. Tel: 670700; Fax:674611.

Russia

(Russian Federaion) **Cap:** Moscow; **Area:** 17,075,000 sq.km; **Pop:** 147.0 m.; **Lang:** Russian and other languages; **Literacy:** 99%; **Rel:** Christianity, non-religious; **Currency:** Ruble \$1=4594; **p.c.i:** \$2680(1992); **President:** Boris Yeltsin; **PM:** Victor Chernomyrdin.

Russia, the largest country in the world in area, stretches across the continents of Asia and Europe. It extends for over 9600 km. from the Baltic Sea to the Pacific Ocean and for 4800 km. from north to south.

Russia, an independent country since Dec. 1991, is 75% of the total area of the former Soviet Union and has 50% of its total population. About 70% of USSR's total industrial and agriculture output came from Russia.

Russia has now taken the place of the former Soviet Union in international fora. Already a U.N. member, it took over Soviet Union's seat on the Security Council, after the collapse of the USSR.

On December 8, 1991, Russia, Byelorussia and Ukraine concluded an agreement establishing a Commonwealth of Independent States (CIS) with its headquarters in Minsk. The member states are the three founders and nine subsequent adherents: Armenia, Azerbaijan,

Moldavia, and the Central Asian republics of Kazakhstan, Kirghizia, Tajikistan, Turkmenistan and Uzbekistan and Georgia.

The CIS is not a state but a community of independent states which has proclaimed itself the successor to the USSR, in some aspects of international law and affairs.

Russia, a founder of CIS, adopted the name 'Russian Federation'.

In 1993, a drive to privatize thousands of large and medium-sized state-owned enterprises was launched. President Yeltsin narrowly survived an impeachment vote by the Congress of Deputies in March. In Oct., Yeltsin ordered the army to attack and seize the parliament building, where anti-Yeltsin legislators had barricaded themselves. About 140 people were killed in the fighting.

In July '94, Russia joined NATO's partnership for peace plan of military cooperation with former communist states.

Natural resources include iron ore, oil, gold, platinum, copper, zinc, lead and tin. Russia's gold industry is world's second largest. Steel mills, huge dams, oil and gas industries and electric rail roads have transformed parts of Siberia.

Mission in India: Embassy of Russia, Shantipath, Chanakyapuri, New Delhi-110 021. Tel: 6873799; Fax:6876823.

Consulates: Bombay: Palm Beach, 42 L. Jagmohandas Marg. Tel:3633628

Calcutta: 31, Shakespeare Sarani, Calcutta - 700 017. Tel: 799973.

Madras: Consulate General, 14, Santhome High Road, Madras - 600 004. Tel: 832320.

Rwanda

(Republic of Rwanda) Republica y'u Rwanda. **Cap:** Kigali; **Area:** 26,338 sq km; **Pop:** 8.0 m.; **Lang:** French, Kinyarwanda and Swahili; **Literacy:** 50%; **Rel:** Tribal, Islam and Christianity; **Currency:** Rwanda Franc. \$1=135.49; **p.c.i:** \$200; **President:** Pasteur Bizimungu; **PM:** Pierre Claver Rwigema

Formerly part of the Belgian Trusteeship of Ruanda-Urundi in east-central Africa, the Republic of Rwanda became independent on July 1, 1962. One of the most densely populated countries of Africa, it is known as "the nation of a thousand hills" because of its mountainous nature.

Rwanda presents a dismal scene of ethnic fighting. For centuries, the Tutsi dominated the Hutus (90% of the population). A peace accord between the government and the Tutsi rebels was signed in August, 1993. The four-year old inter-tribal war between the Hutu-dominated government and the Tutsi-backed rebels has resulted in the death of thousands and one of

world's biggest movements of refugees. President Juvenal Habyarimana, along with the Rwundi President, died in a rocket attack in April, 1994. Ethnic violence broke out. In May, Kigali airport fell to rebels. Hutu refugees from Western Rwanda crossed into Zaire as Tutsi rebels held 2/3 of the country. In refugee camps people died from hunger and disease, at the rate of over 1000 a day. French troops under a UN mandate moved into SW Rwanda (June) to establish a so-called safe zone. In July the Tutsi-dominated Rwandan Patriotic Front named a new President (P. Bizimungu). In August, '95, PM Faustin Twagiramuna was removed. French troops pulled out in Aug., a small African peacekeeping force remained.

The economy is agricultural and remains mainly at the subsistence level. Coffee, cotton, sorghum, cassava and sweet potatoes are the principal crops. Minerals include tin ore, tungsten, tantalite, gold and beryl. Industry is undeveloped. Livestock raising is widespread and hides and skins are exported.
No representation in India.

San Marino

(Most serene Republic of San Marino) **Cap:** San Marino; **Area:** 61 sq km; **Pop:** 24,000; **Lang:** Italian; **Literacy:** 97%; **Rel:** Christianity; **Currency:** Italian Lira. \$1=Lire 1667; **p.c.i.:** \$8250. **Captains-Regent:** Two co-regents appointed every six months from the Great and General Council of 60 members elected every 5 years. The republic of San Marino is a land-locked state in central Italy, 20 km. from the Adriatic. It claims to be the oldest state in Europe, having been founded in A.D. 301, and the oldest republic in the world.

A communist-led coalition ruled 1947-'57, a similar coalition ruled 1978-'86. San Marino has had a treaty of friendship with Italy since 1862. The principal products are wheat, wine and olives. Industries include textiles, ceramics, cement, paper, postage stamps, leather and woollen goods. Tourism is the major source of revenue.

A person born in San Marino remains a citizen and can vote no matter where he lives. Women were granted the vote in 1959.

Mission in India: Consulate General of San Marino, 15, Aurangzeb Road, New Delhi-110011. Tel: 3015850.

Sao Tome & Principe

(Democratic Republic of Sao Tome and Principe) **Cap:** Sao Tome; **Area:** 964 sq km; **Pop:**



132,000; **Lang:** Portuguese, native dialects like Fang; **Literacy:** 50% **Rel:** Christianity; **Currency:** Dobra. \$1= 1610; **p.c.i.:** \$ 370(1992); **President:** Miguel Trovoada*; **PM:** Norberto Costa Algre.

These two islands, with a few other nearby islets, lie in the Gulf of Guinea, about 200 km. from Gabon. Situated north of the equator, these islands have hot steaming weather in the summer, but plenty of rainfall. The largest of the islands is Sao Tome, on which stands Sao Tome, the capital and chief port.

These islands were under the Portuguese until 1975 when they became independent.

Today, the country's economy is geared almost exclusively to the production of agricultural export commodities, especially cocoa. Fishing is an important activity. Sao Tome has to import most of its food. There is virtually no manufacturing industry except soap, soft drinks etc.

* In August, 1995 there was a military coup and, Francisco Fortunato Pires was appointed interim president. The coup failed.

Saudi Arabia

(Kingdom of Saudi Arabia) al-Mamlaka al 'Araiya as-Sa'udiya. **Cap:** Riyadh (Royal) and Jeddah (Administrative). **Area:** 2,250,070 sq km. **Pop:** 17.9m. **Lang:** Arabic; **Literacy:** 62%. **Rel:** Islam; **Currency:** Rial (SAR) \$1= 3.75. **p.c.i.:** \$ 7940. **Head of State & Govt:** King Fahd Ibn Abdel Aziz al Said.

Saudi Arabia occupies nearly four-fifths of the Arabian peninsula.

In the province of Hejaz are Medina and Mecca (the religious capital), the holy cities of Islam. The mosque of the Prophet in Medina enshrines the tomb of Mohammed, who died in the city in 632. More than 600,000 Muslims from sixty nations pilgrimage to Mecca, the Prophet's birthplace, every year.

Of the total population, 6 m. are foreigners. Saudi Arabia is an absolute monarchy, with no formal constitution or parliament. By the

King's decree, a 60-man Consultative Council (Majlis ash-Shura) of royal nominees was set up in Aug. 1993.

Saudi Arabia has great oil wealth (one third of all known oil reserves) and is the foremost exporter of petroleum products today. The income from oil forms the major source of public revenue. Saudi Arabia is an agricultural country whose main products are dates, wheat, barley, fruit, hides and wool.

Industries: Petrochemicals, fertilizers, steel, gas, plastics. In 1992, 2000 factories were in operation. New industrial cities are being built at Jubail and Yanbu on the Gulf.

Mission in India: Embassy of Saudi Arabia. D12, NDSE Part II, New Delhi-110 049. Tel: 6442470; Fax: 6449423.

Royal Consulate: Maker Tower, F Cuffe Parade, Bombay-400 005; Tel: 2181598.

Senegal

(Republic of Senegal) **Cap:** Dakar; **Area:** 196,162 sq km; **Pop:** 8.3 m.; **Lang:** French, Wolof and other native tongues; **Literacy:** 35%; **Rel:** Islam and Tribal; **Currency:** Franc CFA. \$1=Francs CFA 504; **p.c.i.:** \$ 780; **President:** Abdou Diouf; **PM:** Habib Thiam.

Senegal lies on the West African bulge. Dakar, the capital, is the westernmost point in Africa.

Formerly a French colony, Senegal became a self-governing republic in 1960. Senegal was a one party state from 1966 to 1974, when a pluralist system was re-established. French political and economic influence is strong. In 1981, Senegal signed an agreement with The Gambia for a confederation of the two states under the name Senegambia. The confederation established on Feb. 1, 1982, was dissolved on Sept. 21, 1989.

Agriculture and livestock rearing are the chief occupations. Crops: Peanuts, millet, rice. There are large deposits of iron ore and phosphate. Industries: food processing, chemicals, textiles and fishing. A long drought brought famine in 1972-73 and in 1978.

Mission in India: Embassy of the Republic of Senegal, 30 Paschimi Marg, Vasant Vihar, New Delhi-110 057. Tel: 6873720; Fax: 6875809.

Seychelles

(Republic of Seychelles) **Cap:** Victoria; **Area:** 308 sq km; **Pop:** 72,250; **Lang:** Creole, English and French; **Literacy:** 80%; **Rel:** Christianity; **Currency:** Rupee. \$1=Rupees

4.82; **p.c.i.:** \$ 5480; **President:** France Albert Rene.

Situated in western Indian Ocean, over 1100 km. off NE of Madagascar. Seychelles is a group of about 115 lovely islands. Half the islands are coralline and the other half granitic. The principal island is Mahe on which the capital Victoria is situated. Praslin and La Digue are two other islands.

Seychelles was entirely uninhabited when the French established settlements there in 1768. It was ruled as part of Mauritius from 1814. Britain seized the group of islands in 1794. In 1903, it became a separate colony. Independence was declared on June 29, 1976 and Seychelles became a one-party state in 1979.

The population of Seychelles is of mixed origin, a unique blend of European, African Indian and Chinese races. Seychelles is renowned for its fine beaches, attractive scenery and pleasant climate. Agriculture and fishing are major occupations. Chief crops: Coconuts, cinnamon, tea, vanilla and patchouli. Industry: food processing. Tourism is a major contributor to gross domestic product.

Mission in India: Hon. Consul. Plot 478, 1st Floor, 13th road, Chembur, Bombay-400073. Tel: 5512360; Fax: 5113850.

Sierra Leone

(Republic of Sierra Leone) **Cap:** Freetown; **Area:** 71,740 sq km; **Pop:** 4.4 m.; **Lang:** English and Tribal; **Literacy:** 24%; **Rel:** Islam, Christianity and Tribal; **Currency:** Leone. \$1=Leone 594.96; **p.c. i.:** \$ 140; **Head of State & Gov:** Captain Valentine Strasser.

Sierra Leone (meaning mountain of the lion) was the name originally given to this area by Portuguese sailors mainly on account of the thunder-storms around its coastal peaks. It lies on the West African bulge, between Guinea and Liberia.

Formerly under British rule, Sierra Leone became independent in 1961 and a republic in 1971.

In. Apr. '92, the National Provisional Ruling Council formed a government.

Fighting between government and rebels made 35,000 flee, in January, 1995. Rebels of the Revolutionary United Front (RUF) have spread throughout the country. Strasser has offered a ceasefire and unconditional talks.

The economy is based on agriculture and mining. Main crops: Cocoa, coffee, palm kernel, rice, ginger.

No representation in India.

Singapore

(Republic of Singapore) **Cap:** Singapore city; **Area:** 616.3 sq km; **Pop:** 2.8 m.; **Lang:** Malay, Chinese, Tamil and English; **Literacy:** 85%; **Rel:** Buddhism, Hinduism, Islam, Christianity and Islam; **Currency:** Singapore Dollar. \$1=\$S\$45; **p.c.i.:** \$15,750; **President:** Ong Teng Cheong, **PM.:** Goh Chok Tong.

Singapore is a small island with some 54 outlying islets situated at the southern tip of the Malay peninsula, to which it is linked by a 1056-metre causeway. Singapore became a separate crown colony of Britain in 1946, and attained full internal self-government in 1959. In 1963 it joined Malaya, Sarawak and Sabah to form the Federation of Malaysia. Tensions between Malaysians, dominant in the federation and ethnic Chinese, dominant in Singapore, led to an agreement under which Singapore became a separate nation on August 9, 1965. The population of Singapore is composite. The Chinese comprise 77% Malays 15% and Indians 6%.

The country is an entrepot for Malaysia and other southeast Asian states. It is one of the world's largest ports. The chief exports are rubber and tin. Industries include tin smelting, rubber, ship-building, textiles and oil refining. Singapore is the largest oil refining centre in Asia. Food, tourism and banking. Standards in health, education and housing are high.

Mission in India: High Commission of the Republic of Singapore, E 6, Chandragupta Marg, Chanakyapuri, New Delhi-110021. Tel: 6885659; Fax: 6886798.

Defence spending by Asian countries

According to the International Institute of Strategic Studies and the World Defence Almanac, the defence spending by major countries in Asia for the years 1990, 1991, and 1992 was: (in billion U.S dollars)

countries	1990	1991	1992
Japan	31.88	32.68	33.54
China	11.30	11.85	6.72
Taiwan	9.00	9.29	11.62
S.Korea	7.06	10.77	10.92
India	9.05	7.87	N.A.
Australia	7.27	7.06	5.20
Thailand	2.18	2.40	2.69
Malaysia	1.70	1.72	1.94
Singapore	1.70	2.13	1.71
Indonesia	1.61	1.55	1.65



Consulates: 94 Sakar Bhavan, 230 Nariman Point, Bombay-400 021; Tel: 2043209.

C/o Diners, 8A 2nd Floor, AJC Bose Road, Calcutta. Tel: 474990, 470400.

Apex Plaza, 3 Nungambakkam High Road, Madras-600 034. Tel: 473795, 476637.

Slovakia

(Slovensko) **Cap:** Bratislava; **Area:** 49,039 Sq. km; **Pop:** 5.4 m.; **Lang:** Slovak, Magyar; **Literacy:** 99%; **Rel:** Christianity; **Currency:** New Koruna (Crown) \$1 = 33; **p.c.i.:** \$1,920; **President:** Michael Kovac; **P.M.:** Josef Moravick.

The Czechoslovak federal republic was dissolved on Dec. 31, 1992, and the two new republics of Czech and Slovakia were born on Jan. 1, 1993. (See Czech Republic for details).

Slovakia is bounded by Poland, Ukraine, Czech republic, Austria and Hungary.

In the former Czechoslovakia, Slovakia was less industrialised than the Czech land.

Industry: Metallurgy, engineering, chemical, textile, glass.

Agriculture: Wheat, barley, potatoes, vegetables, fruits, sugarbeet.

Slovakia applied for EU membership in June, 1995.

Minerals: Coal, magnesite, metallic ore.

Mission in India: Embassy of the Slovak Republic, 50-M Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 601015; Fax: 6877941.

Slovenia

(Republic of Slovenia) **Cap:** Ljubljana; **Area:** 20,251 sq.km; **Pop:** 1.9 m.; **Language:** Slovenian; **Literacy:** 90%; **Religion:** Christianity; **Currency:** Tolar \$1 = 118.7; **p.c.i.:** \$6,330(1992). Ethnic breakdown: Slovenes - 91%. Others - 9%; **President:** Milan Kucan, **P.M.:** Janez Drnovsek.

The Slovenes settled in their current territory in 6th to 8th centuries but fell under German

domination in the 9th century. After 1848, the struggle for unification began. In 1918 Yugoslavia was established, and the majority of the Slovenes entered the new state, which became the Kingdom of the Serbs, Croats and Slovenes. Slovenia, the most affluent Yugoslav republic, declared independence on June 25, 1991. In Feb. 1992, EC granted recognition. Slovenia is Croatia's main ally.

Agricultural products: Wheat, potatoes, maize, timber, livestock.

Industry: Steel, textiles, electricity, motor vehicles, sulphuric acid, bauxite.

Solomon Islands

Cap: Honiara; **Area:** 29,758 sq km; **Pop:** 360,000; **Lang:** English, Pidgin English, local languages; **Literacy:** 60%; **Rel:** Christianity; **Currency:** Solomon Island Dollar (SI\$). \$1 = 3.31; **p.c.i.:** \$710; **Gov. Gen:** Sir George Lepping; **P.M.:** Solomon Mamoloni.

The Solomon Islands are in the South West Pacific and lie to the east of Papua New Guinea. Originally a British Protectorate, it achieved independence in 1978.

The population is predominantly Melanesian. Copra is the main cash crop and rice the chief food crop. Other crops: Bananas, yams. **Industry:** Fish canning, rice milling, food, tobacco. Fish is a vital element in food and an export item.

Somalia

(Somalia Democratic Republic) **Cap:** Mogadishu; **Area:** 637,657 sq km; **Pop:** 9.3 m; **Lang:** Somali, Arabic, English, Italian; **Literacy:** 24%; **Rel:** Islam; **Currency:** Somali Shilling. \$1 = 2619.83; **p.c.i.:** \$ 170; Government in transition.

A republic in the Horn of Africa, Somali Democratic Republic was formed by the union of the former Italian Somaliland and the British Somaliland on July 1, 1960. Somalia is essentially a pastoral country, with 80% of people depending on livestock-rearing. It has 40.1 m livestock.

The year 1992 saw one of the worst famine in Somalia. Ravaged by civil war, the country was in a state of anarchy. Starvation threatened 50% of the population. Over 800,000 fled to Kenya. Relief efforts were hampered by battles between rival clan factions. Thousands were dying every day. In Jan., 1991 President Siad Barre was toppled - an end to 21 years of one-man rule.

Ali Mahdi Muhammad (United Somali Congress) became President in Aug. 1991. Interfactional fighting continued. A new coal-

ition government under the chairmanship Gen. Muhammad Farah Aidid agreed a UN military presence to back up relief efforts. Troop from USA and other countries mounted a mission to ensure the supply of aid. In Dec. '92, leaders of two of the 14 warring factions, Ali Mahdi Muhammad and Muhammad Farah Aidid agreed to a peace plan under the aegis of the U.N.

The Somali National Movement, the main insurgent group in the north, declared the secession of an independent Somaliland Republic in May, '91, with capital at Hargeisa and Abdurahman Ahmed Ali as President.

Militia of Gen. Aidid's Somali National Alliance were held responsible for attacks on UN personnel. In March, '94, the last of the 30,000 American troops who had landed in Dec. '92 left Somalia, closing a chapter in the costliest humanitarian venture in UN history. A peace accord was signed in June, '94 by 19 Somali leaders, but violence continued.

Crops: Sugarcane, bananas, sorghum, maize.

Mission in India: Embassy of Somali Democratic Republic, A17-Defence Colony, New Delhi - 110 024. Tel: 4619559; Telex: 31-65010 ESDR IN.

South Africa

(Republic of South Africa) **Cap:** Pretoria (administrative); Cape Town (legislative); Bloemfontein (judicial); **Area:** 1,221,037 sq km; **Pop:** 41.5 m; **Lang:** Afrikaans and English; **Literacy:** 99% (whites), 69% (Asians), 62% (coloureds), 50% (Africans); **Rel:** Christianity; **Currency:** Rand. \$ 1 = 3.57; **p.c.i.:** 2,670. **President:** Nelson Mandela.

The Republic of South Africa lies at the southern tip of the continent of Africa. S. Africa includes the original white colonies of the Cape of Good Hope, Natal, Transvaal and Orange Free State. Formerly known as the Union of South Africa (formed in 1910), it became a republic after leaving the Commonwealth in May 1961.

The country adopted a policy of *Apartheid* - the separate development of racial groups. Under the Bantu Homelands Constitution Act of 1971, self-government was given to Transkei, Bophuthatswana, Venda and Ciskei. Transkei (Pop. 3,458,000, Cap. Umtata); Bophuthatswana (Pop. 2,420,000, Cap. Mmabatho); Venda (Pop. 559,000, Cap. Thohoyandou); Ciskei (Pop. 847,000, Cap. Bisho).

There were six other homelands which were territories with a degree of self-government but still forming the part of the Republic. They were: Kwa Zulu, Gazankulu, Lebowa, Qwaqwa, Ka Ngwane and Kwa Ndebele. (The homeland

ceased to exist when apartheid ended).

The year 1990 witnessed softening of the Whites' attitude towards the 26 million agitating blacks. The government lifted the ban on African National Congress, the primary black group fighting to end white minority rule, and its leader 71-year-old Nelson Mandela was released from prison after 27 years of confinement.

However, events of 1992 and 1993 once again worsened the situation and hopes of an end to the South African tragedy began thinning. Sporadic factional violence continued between supporters of ANC and the Zulu Inkatha Party.

Constitutional talks began in Dec. '91 but killings interfered, and talks re-opened in Apr. '93. In Dec. parliament adopted a transitional constitution paving the way for a new multi-racial parliament to be elected in April, '94. Thus the first general election in S. Africa on the basis of a one-person one-vote system took place on Apr. 26-28 and ANC got 62.25% of votes. On May 10, Mandela was sworn in (the first black) President. South Africa was again admitted to OAU, NAM, Commonwealth and UN General Assembly. Thus a new South Africa was born.

South Africa is the richest African country. The major agricultural products are cotton, wheat, maize, tobacco, sugarcane, citrus fruits and dairy products. With vast mineral resources, South Africa is the biggest gold and diamond producing country in the world and one of the biggest producers of uranium. About 47 per cent of the world's total production of gold is from South Africa. Other minerals include coal, copper, tin, manganese, iron, lead and chrome. Manufacturing industries include heavy engineering, chemicals, textiles, steel, plastic and food processing.

Mission in India: Embassy of South Africa, B 18, Vasant Marg, Vasant Vihar, New Delhi-110057, Tel: 6119411-20; Fax: 611 3505.

Spain

(Espana) **Cap:** Madrid; **Area:** 504,750 sq km; **Pop:** 39.6 m.; **Lang:** Spanish, Catalan, Basque, Galician; **Literacy:** 97%; **Rel:** Christianity; **Currency:** Peseta. \$1= 126.67; **p.c.i.:** \$12,342. **Head of State:** King Juan Carlos; **PM:** Felipe Gonzales Marquez.

With the discovery of America for Spain by Columbus in 1492, Spain became a great colonial empire. After the defeat of the Spanish Armada by England in 1588, Spain shrunk into a minor continental power. In 1939, it passed under the dictatorship of Gen. Franco. On Franco's death in 1975 Spain became a consti-



tutional monarchy.

Traditionally an agricultural country, Spain's main products are cereals, grapes, olives, vegetables and fruits. Industries include chemicals, machine tools, automobiles, ship-building, steel, textiles and processed foods.

Mission in India: Embassy of Spain, 12 Prithviraj Road, New Delhi-110 011. Tel: 3792085; Fax: 3793375.

Consulates: 6 Q Dubash Marg, Bombay-400 023; Phone: 2874797

1, Taratolla Road, Garden Reach, Calcutta-700 024. Tel: 496452

Lovedale' 8, Nimmo Road, San Thome, Madras-600 004; Tel: 72008.

Sri Lanka

(Democratic Socialist Republic of Sri Lanka) Sri Lanka Prajathanthrika Samajavadi Janarajaya; **Cap:** Colombo; **Area:** 65,610 sq.km; **Pop:** 18.4 m.; **Lang:** Sinhala, Tamil & English; **Literacy:** 90%; **Rel:** Buddhism, Hinduism, Christianity and Islam; **Currency:** Rupee, US\$1=49.81; **p.c.i:** \$540 **President:** Chandrika Kumaratunga; **PM:** Sirimavo Bandaranaike.

Sri Lanka is an island in the Indian Ocean about 80 km east of the southern tip of India.

History: Known to the ancient world as Taprobane and later as Serendip, the island was also known as Lanka, Sinhala Deepa and Seelan at different times. Until 1972, it was Ceylon. The country became independent on 4 February 1948 and on 22 May the Republic of Sri Lanka was created.

Before the new republican constitution was promulgated, a youth insurrection in April 1971 rocked prime minister Sirimavo Bandaranaike's United Front government, leading to her imposing several harsh socialist measures. By the 1977 general election, a country tired of endemic scarcities and rising prices swept her out of office.

The United National Party (UNP) administration of Prime Minister Junius Jayewardene which took over, replaced the 1972 constitution and

Jayewardene assumed unprecedented power as executive president, becoming both head of state and head of government. He was elected to a second six-year term in October 1982, and in a referendum won a mandate to extend parliament to 1989. In late 1988, former prime minister Ranasinghe Premadasa was elected executive president for a 6-year term.

The Tamils in Sri Lanka have been fighting for more power for over a decade. In 1978 some concessions such as the recognition of the Tamil language were made. TULF — Tamil United Liberation Front spearheaded the agitation. Later more militant organisations like the LTTE Liberation Tigers of Tamil Eelam and EPRLF Eelam People's Revolutionary Liberation Front and an extremist group JVP Janatha Vimukti Peramuna — took the cudgels.

On 29 July 1987, however, an important breakthrough was made when President Jayawardene and the Indian Prime Minister, Rajiv Gandhi signed an accord regarding a settlement of the country's ethnic crisis. Accordingly an IPKF Indian Peacekeeping Force was sent to the island to end the hostilities and supervise surrender of arms. After a long period of bloody military operation, the IPKF started pulling out its forces on September 20, 1989.

In November, Parliament adopted the legislation establishing provincial councils. In the election held in the North Eastern Province under the Peace Plan, Varadaraja Perumal of EPRLF became Chief Minister.

President Rana Singhe Premadasa lifted the emergency after more than 5½ years on January 11, 1989 and general elections were held in February. UNP United National Party won and the former Finance Minister D.B. Wijetunge was appointed Prime Minister.

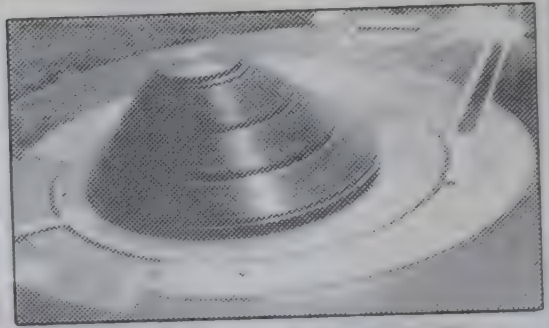
President R. Premadasa, 69, was assassinated by a suicide bomber on May 1, 1993 and the Prime Minister D.B. Wijetunge, 71, was elected President. Ranil Wickremasinghe was appointed Prime Minister.

Presidential elections were held on 9 November 1994. The incumbent Prime Minister, Chandrika Kumaratunga, was elected against one opponent by 62.28% vote.

Parliamentary elections were held on 19 August 1994, and Chandrika Kumaratunga formed the government. But on her election to the presidency in November a new government was formed with her mother Sirimavo Bandaranaike as Prime Minister.

National Flag: A yellow field bearing 2 panels: In the hoist 2 vertical stripes of green and orange, in the fly, dark red with a gold lion holding a sword and in each corner a gold bo leaf.

National Anthem: 'Sri Lanka Matha, Apa sri



Cities of the future: A city built like a truncated cone -Artist: J C Mazet

What is a City?

Definitions vary. In America, a city is that part of a state which has incorporated itself as a city to organise various extra services over and above those provided by the state. These can range from sewage treatment and extra police to a mosquito-abatement service. King county, Washington state, includes 39 cities ranging from Seattle (population: 516,000) to Beaux Arts (population: 200). In England, a city is the seat of a bishop. This makes Wells and Ely cities (with 10,000 people each).

Some cities of sorts exist for just a few days, such as the Woodstock or Glastonbury festivals (populations: 300,000 and 100,000). Others exist only during the day, such as Disney World in Florida (an average of perhaps 80,000 a day). Some cities embrace the whole of a built-up area, such as Las Vegas; others only a small part of it, such as the City of London (the financial district).

One of the more useful sets of definitions comes from "The Economy of Cities" by Jane Jacobs, published in 1969 but wearing well.

City: a settlement that consistently generates its economic growth from its own local economy.

Metropolitan area: economically, it means the same as a city. Politically, it means a city that has physically expended beyond its formal boundaries, in the process engulfing former towns and, in some instances, coalescing with other, formerly separate, cities.

Town: a settlement that does not generate its growth from its own local economy and has never done so.

Village: a smaller town.

Lanka' 'Mother Sri Lanka, thee Sri Lanka'); words and tune by A. Samarakone. There is a Tamil version, 'Sri Lanka thaaya, nam Sri Lanka'; words anonymous.

The island is divided into 25 districts, administered by government agents. There are 12 municipal councils and 24 district councils.

Economy: Sri Lanka's predominantly rural population is concentrated in the west, south and south-west regions, where rubber, tea and coconuts are grown. About one-half of the working population are engaged in agriculture, forestry and fishing, and only agriculture provided 24% of the gross domestic product (GDP) in 1992.

Of the total area of 6,561,000 hectares, about 2m. hectares are under cultivation. Agriculture engages about 45% of the labour force. The main crops are paddy, rubber, tea and coconuts.

In 1978, Sri Lanka was the world's largest exporter of tea, when tea, rubber and coconut together contributed about 70% of total export earnings. This position gradually declined. However, early 1990s showed signs of revival.

Industry and Trade: The main industries are food, beverages, tobacco, textiles, clothing and leather goods, chemicals, petroleum, rubber and plastics.

Principal exports are tea, rubber, copra, coconut oil and desiccated coconut, textiles and garments, precious and semi-precious stones.

Principal imports are petroleum, machinery and equipment, vehicles and transport equipment and food and beverages.

Experimental television broadcasting began in April 1979. Roopavahini, a national television network was established, with stations at Mount Pidurutalagala, Kokavil and Kandy, from which telecasting began in December 1982.

Mission in India: High Commission of Sri Lanka, 27-Kautilya Marg, Chanakyapuri, New Delhi - 110 021. Tel. 3010201; Fax: 3015295.

Consulate: Sri Lanka House, 34, Homi Modi Street, Bombay - 400 023. Tel. 2045861.

Deputy High Commission: 9-D Nawab Habibullah Avenue, Anderson Road, Madras - 600 006. Tel. 476751.

St. Kitts-Nevis

(Federation of St. Kitts and Nevis) **Cap:** Basseterre; **Area:** 269sqkm; **Pop:** 42,000; **Lang:** English and Patois; **Literacy:** 98%; **Rel:** Christianity; **Currency:** East Caribbean Dollar, \$1= 2.69; **p.c.i.:** \$3960. **Gov. Gen:** Sir Clement Athelston Arrindell. **PM:** Dr. Kennedy Alphonse Simmonds.

St. Christopher (Kitts)-Nevis is two islands in



East Caribbean separated by a narrow channel 3.2 km wide. The islands were given the status of an Associate State of the U.K. in 1967 and became independent on Sept. 19, 1983. At that time Anguilla was part of St. Kitts-Nevis. The Anguillians revolted against this arrangement and Anguilla was separated. Nevis has the right of secession.

The population is mostly black. The economy is agricultural, cotton and sugar being the principal crops. Industries: Sugar, construction, clothing, tourism.

St. Lucia

Cap: Castries; **Area:** 616sqkm; **Pop:** 145,000; **Lang:** English and French patois; **Literacy:** 78%; **Rel:** Christianity; **Currency:** East Caribbean Dollar, \$1= 2.69; **p.c.i.:** \$ 2870. **Gov. Gen:** Stanislaus James; **PM:** John George Melvin Compton.

St. Lucia, in Eastern Caribbean, is the second largest island in the Windward group. Volcanic in origin. St. Lucia was ceded to Britain by France in 1814. Self-government was granted in 1967. It became independent on Feb. 22, 1979. There is a 17-seat House of Assembly.

The economy is agricultural, coconut, bananas and cocoa being the main crops: Manufactures include soap, plastics, garments and beer.

St. Vincent & The Grenadines

Cap: Kingstown; **Area:** 388 sq km; **Pop:** 112,000; **Lang:** English and French Patois; **Literacy:** 85%; **Rel:** Christianity; **Currency:** East Caribbean Dollar: \$1=2.70; **p.c.i.:** = \$1730; **Gov. Gen:** David Jack; **PM:** James Fitz Allen Mitchell.

One of the Windward islands, west of Barbados, St. Vincent became a British Associated State in 1969 and achieved independence on Oct. 27, 1979.

St. Vincent (345 sq.km.), chief island of the chain, is dominated by the volcano La Soufriere. (It erupted in 1979). The Grenadines is a chain of islets with a total area of 43 sq.km.

The population is of mixed origin: European-Negro and Carib-Indian. Bananas, arrowroot, copra, sea island cotton and spices are the main products. Industry: Food-processing. Tourism is important; there were 158,000 visitors in 1990.

Sudan

(Republic of the Sudan) **Cap:** Khartoum; **Area:** 2,505,813 sq km; **Pop:** 28.1 m.; **Lang:** Arabic, English, Dinka, Nubian etc.; **Literacy:** 27%; **Rel:** Islam, Christianity and Tribal; **Currency:** Dinar. \$1=38.46 (old currency Sudanese Pound remains legal tender); **p.c.i.:** \$450. **President:** Lt. Gen. Omar Hassan Ahmed al-Bashir. **PM:** Brig. Gen. Zubir Mohammed Saleh

The Sudan, the largest African country, is a republic in north east Africa. The White Nile flows through the middle of the country and joins the Blue Nile at Khartoum. Sudan became a sovereign independent republic on Jan. 1956.

The 12 northern provinces are predominantly Arab-Muslim, and the 3 southern provinces are populated largely by Christians and animists. About 300,000 people died as a result of drought and famine that year.

The rebel Sudanese People's Liberation Army (SPLA) maintains guerilla activities in the south. In July '94 government declared a unilateral ceasefire in the 11-year war with SPLA, as a step to begin peace talks.

The main agricultural crop sorghum is the country's staple food and cotton is the most important cash crop. Other products include sugarcane, sesame, peanuts, dates, hides and skins, chillies, beans and corn. Sudan is the world's principal source of gum arabic. Sudan's mineral wealth includes copper, gold, iron, manganese and magnesite. Oil has also been found. Industry: Textiles, food processing.

Mission in India: Embassy of the Republic of Sudan, F-63 Poorvi Marg, Vasant Vihar, New Delhi-110 057. Tel: 6873185; Fax: 6883758.

Suriname

(Republic of Suriname) **Cap:** Paramaribo; **Area:** 163,820 sq km; **Pop:** 410,000; **Lang:** Dutch, English, Hindi, Sranantongo (Surinamese) and Javanese; **Literacy:** 65%; **Rel:** Christianity, Hinduism and Islam; **Currency:** Suriname Guilder. \$1= 419; **p.c.i.:** \$ 3700. **President:** Ronald Venetiaan; **PM:** Jules Ajodhia.

A tax to grind

Taxes in Sweden were equivalent to a hefty 53 per cent of the Gross Domestic Product (GDP) in 1994 - the highest rate for any OECD (Organisation for Economic Co-operation and Development) country. Taxes also exceeded 50 per cent of GDP in Denmark, and came close to doing so in Finland, Holland, Norway, Belgium, and Italy. Turkey's taxes - only 23 per cent of GDP, are the lowest in the chart. Japan and USA too have taxes below 30 per cent.

Across the 24-member OECD, personal income taxes are the largest single source of revenue, but amount to less than a third of the total. Consumption taxes, notably VAT (Value Added Tax), and social security contributions raise nearly as much.

Total tax revenues

as % of GDP, 1994



Source: OECD

*1993

Suriname, formerly Dutch Guyana, lies on the north east coast of South America. It became independent in 1975.

The population comprises a medley of ethnic strains. The most important groups are Negroes/Mulattoes and East Indians (Hindustani), both more than 1/3 of the population. Other groups: Indonesians, Chinese, Lebanese and Amer-Indians.

The economy is very dependent on exports and imports. Much of the land is given to rice cultivation, managed by Hindustanis. The country is rich in bauxite. Nowadays it produces 5% of the world output. Bauxite, alumina and aluminium constitute nearly 80% of the exports. Industry: Aluminum, processed foods, lumber.

No representation in India.

Swaziland

(Kingdom of Swaziland) **Cap:** Mbabane; **Area:** 17,363 sq km; **Pop:** 913,000; **Lang:** English and Swazi; **Literacy:** 65%; **Rel:** Christianity and Tribal. **Currency:** lilangeni (pl-emalangeni). \$1=3.57; **p.c.i.:** \$ 1,050; **Head of State:** King Mswati III. **PM:** Obed Dlamini.

Swaziland is surrounded almost entirely by South Africa. Mozambique to the east is its only other neighbour.

Swaziland, formerly a British protectorate, attained independence on Sept. 6, 1968.

The royal house of Swaziland is one of Africa's last ruling dynasties. The population is homogenous, of Nguni descent.

Sugar is the principal item in the economy, with citrus fruits, cotton, rice and maize, coming next. But the main wealth of the Swazis is cattle. There are considerable mineral reserves, especially, asbestos, iron and coal. Industry: Wood pulp, cotton ginning and meat processing.

Sweden

(Kingdom of Sweden) **Konungariket Sverige.** **Cap:** Stockholm; **Area:** 449,793 sq km, **Pop:** 8.8 m.; **Lang:** Swedish; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Krona. \$1= 7.26; **p.c.i.:** \$ 27,500; **Head of State:** King Carl XVI Gustav. **PM:** Ingvar Carlsson (resigning Mar. 1996).

Sweden which occupies the eastern part of the Scandinavian peninsula, is the largest of the Nordic countries and in terms of area, the fourth largest country in Europe. Water-Baltic Sea and the North Sea. A constitutional monarchy since 1434, Sweden is the world's first widely comprehensive welfare state. Stockholm is known as "Beauty on the Sea"



Sweden has rich natural supplies of coniferous forest, water power, iron ore and uranium.

Highly industrialised, Sweden today exports 40% of its industrial production. Major industry: Steel, machinery, instruments, autos, ship building and paper.

Main crops: Grains, potatoes, sugar beets and dairy products.

Sweden has decided against joining NATO.

Mission in India: Embassy of Sweden, Nyaya Marg, Chanakyapuri, New Delhi-110 021. Tel: 6875760; Fax: 6885401.

Consulate General: 84, Sayani Road, Bombay-400 025; Phone: 4360493; Fax: 4222703.

6 Poonam Building, 5/2 Russell St, Calcutta. Tel: 293639; Fax: 2476142.

Hon. Consul, 6, Cathedral Road, Madras-600 086; Phone: 8275792; Fax: 8257150.

Switzerland

(Swiss Confederation) **Cap:** Berne; **Area:** 41,293 sq.km.; **Pop:** 7.2 m.; **Lang:** German, French, Italian and Romansch; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Swiss Franc. \$1 = Swiss Francs 1.21; **p.c.i.:** \$ 36,410; **President :** J.P.Delamuraz.

Switzerland, a Confederation in Central Europe is a mountainous country, with the Alps covering 60% of the land area. The country is famous for its lakes. About one-fourth of the area is covered by mountains and glaciers.

Since 1291 Switzerland (called Helvetia in ancient times) has remained a completely independent country. It is a multi-lingual state with most people speaking more than one language. It has 1.24 million foreign residents. In a referendum in 1986 the electorate voted against joining the UN. The largest cities are Zurich, Basel, Geneva, Berne and Lausanne.

In 1971, women were given the vote in federal elections and the right to hold federal office.

The Swiss terrain offers little scope for farming. Nevertheless, a number of small efficient farms operate and keep the farming

community going. The emphasis is on live-stock raising and dairying. Crops include grains, potatoes, sugar beets, vegetables, fruits and wine. Forests help by providing plenty of wood. From the earliest times Switzerland has been famous for its cottage industries-high quality products but no large-scale production.

Swiss-made watches and clocks are famous the world over. Precision tools and machines form another specialised industry. Other industries: Steel, textiles, food-stuffs (cheese, chocolate), chemicals, drugs, banking. Minerals: Salt. The availability of electric power in every cottage has fostered growth of all kinds of small industries throughout Switzerland. Tourism is the third most paying industry. Switzerland is a leading world banking centre and the seat of many UN and other international agencies. Geneva was the headquarters of the League of Nations.

Mission in India: Embassy of Switzerland, Nyaya Marg, Chanakyapuri, New Delhi - 110021. Tel: 604225; Fax: 687 3093.

Consulate General, 102, Maker Chambers IV, 10th floor 222, Jamnalal Bajaj marg, Nariman Point. Bombay-400021, Tel:2831738; Fax: 2856566.

Swiss Consular Agency, 113 Park Street, Calcutta-700016.

Swiss Consular Agency, 224, T.T.K Road, Madras-600018.

Syria

(Syrian Arab Republic) **Cap:** Damasucs; **Area:** 185,180 sq.km.; **Pop:** 14.7 m.; **Lang:** Arabic, Kurdish, Armenian; **Literacy:** 65% **Rel:** Islam; **Currency:** Syrian Pound. \$1 = 42.00; **p.c. i:** \$ 1160; **President:** Lt. Gen. Hafez al-Assad. **PM.:** Mahmoud Zuabi.

The Syrian Arab Republic in West Asia lies at the eastern end of the Mediterranean Sea. The Orontes and Euphrates rivers pass through Syria. The chief seaport is Latakia.

Syria, the seat of an ancient civilization, became a fully independent sovereign republic in 1946.

Syria joined with Egypt in 1958 in the United Arab Republic but seceded in 1961. Principal towns are Damascus, Aleppo and Homs.

Agriculture and cattle-breeding comprise the major occupations of the people. The chief crops are cotton, wheat, tobacco and olives. Minerals: Oil, phosphate, gypsum. Industries include oils, soap, textiles, leather, tobacco, sugar and glassware.

Mission in India: Embassy of Syrian Arab Republic, 28 Vasant Marg Vasant Vihar, New Delhi 110057. Tel: 670285 Fax:6873107.

Consulate General: 3rd Floor, Cambatta Building Sir Jamshedji Tata Road Bombay-400 020; Phone 221999.



In a clockwork country: Precision is the motto

Taiwan

(Republic of China) **Cap:** Taipei; **Area:** 35,981 sq.km.; **Pop:** 21.3 m.; **Lang:** Mandarin Chinese, Taiwan, Hakka dialects; **Literacy:** 90%; **Rel:** Buddhism, Taoism and Confucianism; **Currency:** New Taiwan Dollar. \$1 = NT \$26.42; **p.c.i:** \$ 8815. **President:** Lee Teng - Hui. **PM:** Lien Chan.

Taiwan, off southeast coast of China and formerly known as Formosa, includes the island of Taiwan, two off-shore islands Quemoy and Matsu, and the nearby islets of the Pescadores chain.

Originally Taiwan and adjoining areas were Chinese territory. In 1950 Chiang Kai Shek made Taiwan the headquarters of the Nationalist Republic of China. Although Taiwan still claims to be the legal government of all China it lost its membership in the UN and its permanent seat in the Security Council to Communist China in 1971. In 1987, martial law was lifted after 38 years and in 1991, the 43-year period of emergency rule ended.

Taiwan has one of the world's strongest economies and is among the 10 leading capital exporters. Taiwan's \$98 b. nest egg of foreign exchange reserves is the world's second largest after Japan's. In June, '95, Taiwan offered \$1 b. towards a fund for developing nations, if admitted to the UN.

The main agricultural products are rice, tea, sugar, sweet potatoes, bananas, jute and turmeric. Camphor secured from forests is a government monopoly. Industries comprise iron works, glass, soap, textiles, clothing, electronics, chemicals, plastics and processed foods. Coal, marble, petroleum and natural gas are the principal minerals. Taiwan has made big progress in agriculture and industry and the living standards have gone high, as a result of land reform, government planning, free universal education and U.S. aid and investment.

No representation in India.

Tajikistan

(Republic of Tajikistan) **Cap:** Dushanbe; **Area:** 143,100 sq.km.; **Pop:** 6.1 m.; **Language:** Tadjik, Russian; **Religion:** Islam; **Currency:** Ruble; **p.c.i:** \$ 1050; **President:** Imomali Rahmonov; **PM:** Abdulmalik Abdulladzhonov.

A former Soviet republic that became independent in Dec., 1991, Tajikistan is bordered by Uzbekistan, Kirghizia, China and Afghanistan.

People who speak an Iranian dialect similar to Persian are considered to be the descendants of the original Aryan population of Turkestan.



Tajikistan had declared sovereignty in 1990. In Nov. '92, Parliament voted to abolish presidency and instal a parliamentay republic. A pro-communist regime came in Jan. '93. Muslim rebels continued to fight the regime.

Agriculture: Farming, horticulture and cattle breeding are the main occupations. Products: Grain, potatoes, vegetable, fruit, grapes, meat, milk, eggs, wool, cotton.

Natural resources: Brown coal, lead, zinc, oil, uranium, radium, arsenic.

Industry: Mining, engineering, food, textile, clothing, silk, bricks, ferroconcrete, knitwear, footwear.

Tanzania

(United Republic of Tanzania) **Cap:** Dodoma; **Area:** 945,087 sq.km.; **Pop:** 29.7 m.; **Lang:** Kiswahili and English; **Literacy:** 90%; **Rel:** Christianity, Islam and traditional beliefs; **Currency:** Shilling. \$1 = 544.97; **p.c.i:** \$ 100. **President:** Ndugu Ali Hassan Mwinyi. **PM:** John Malecela.

The United Republic of Tanganyika and Zanzibar was constituted on April 26, 1964 (named Tanzania on Oct. 29), when the Republic of Tanganyika in East Africa and the island Republic of Zanzibar ('the Isle of Cloves'), off the coast of Tanganyika, joined into a single nation. Zanzibar, the Isle of Cloves, is 37 km. off the coast of Tanganyika and the island of Pemba, 40 km. to the NE, is included in the administration.

Three of Africa's best-known lakes-Victoria, Tanganyika and Nyasa — and Mount Kilimanjaro — the highest in Africa — are in Tanzania.

In 1967 the government set on a socialist course, and nationalized banks and many industries.

The economy is agricultural. The chief cash crops are sisal, sugarcane, cotton, tea, tobacco and coffee. Cloves are grown on the islands, chiefly in Pemba. Livestock is extensively raised. Diamonds are an important export. Other minerals include gold, tin and salt. Industry: Food processing and clothing.

Mission in India: High Commission for the

United Republic of Tanzania, 10/1, Sarv Priya Vihar, New Delhi-110 016; Tel: 6853046; Fax: 696 8408.

Thailand

(Kingdom of Thailand) Muang Thai or Prathet Thai. **Cap:** Bangkok; **Area:** 542,373 sq.km.; **Pop:** 58.8 m.; **Lang:** Thai, Chinese, English and Malay; **Literacy:** 89%; **Rel:** Buddhism and Islam; **Currency:** Baht. \$1 = Bahts 24.90; **p.c.i.:** \$1840; **Head of State:** King Bhumibol Adulyadej Abldet; **PM:** Banharn Silpa-Archa.

Thailand, formerly known as Siam, is a constitutional monarchy in southeast Asia.

An ancient autocracy, it became a constitutional monarchy in 1932. In 1948 the country assumed its present name Thailand. It is the only southeast Asian country never taken over by a European power. The military took over the government in a bloody 1974 coup. In 1988 there

was a democratic election but again military came to power in 1991. Elections were held in Sept.'92.

Thailand today is well on its way to joining the club of Asia's 'economic tigers', and enjoys among the highest growth rates in the world.

On June 9, 1996 King Bhumibol will have been enthroned for 50 years, becoming world's largest reigning monarch.

Agriculture is the mainstay of the country and engages 60 per cent of the population. The chief crop is rice, much of which is exported. Coconuts, tobacco, cotton and teak are the other items of agricultural exports. During the last decade Thailand increased her export to manufactured and processed items. Industry: Cement, processed food, textiles, wood, tin, jewelry. Minerals include tin (one of the largest producers), manganese, tungsten, antimony, lignite and lead. Tourism is highly developed.

Mission in India: Royal Thai Embassy, 56-N,

The 'fifth dragon'

THE Thai economy is growing rapidly, pushed on by exports, consumer spending and a "third wave" of investment from overseas. Thailand has set its sights on becoming the "fifth dragon" in Asia after the newly industrializing economies of South Korea, Taiwan, Hong Kong and Singapore.

The country is becoming increasingly attractive to investors, not least because it is flanked by Myanmar and the three countries of Indochina. King Bhumibol Adulyadej, who celebrated his 67th birthday on Dec. 5, is the pivotal presence behind the stability of the country.

Growth in real gross domestic product is expected at 8.6% for 1994, according to a forecast released by the Ministry of Finance.

The forecast surpassed the prediction of 8.0% made by the Bank of Thailand at the end of July. This was based on the country's performance in the first half of the year, and underlined the speeding up of economic expansion in the second half. If anything, the main worry now is how to keep the economy from overheating.

One particularly flourishing area, is exports. In the late 1980s, when the yen strengthened following the Plaza Accord, Thailand saw a rush of direct investment from Japan and other countries. At the factories that sprung up at that time, production is now well under way and exports are rising

rapidly. That rise has been helped by the economic recovery of the leading industrialised nations, importers of Thai products.

It was the investment drive from overseas in the late 1980s that prompted healthy personal consumption. Incomes grew, particularly among those working at the new foreign companies, giving rise to the emergence of a middle-income class, eager to spend on cars, housing and home electronics goods.

New car sales in 1993 climbed by 25.7% to 456,000 vehicles. Although growth slowed down somewhat in 1994, total sales are nonetheless expected to reach 480,000 to 500,000 units.

Thailand is moving away from being an externally dependent economy.

As well as exports and personal consumption, the "third wave" of investment is also stimulating the Thai economy. According to the government's Board of Investment, it received overseas applications to carry out direct investment in 313 projects totalling 196.4 billion baht in the first half of 1994. That means an increase of 25% in terms of the number of projects, and a leap of 4.6 times of terms of the value of the projects over the same period previous year.

There are also signs of moves to improve the country's transportation and communications infrastructure.

Nyaya Marg, Chanakyapuri, New Delhi - 110 021. Tel: 605679; Fax: 6872029.

Consulates General: 90, Krishna Bagh, 2nd Floor, 43, B. Desai Road, Bombay-400 026; Tel: 3631404.

90, Mandevilla Gardens, Ballygunge, Calcutta-700 019. Tel: 460836.

Togo

(Republic of Togo) **Cap:** Lome; **Area:** 56,785 sq.km.; **Pop:** 4.1 m.; **Lang:** French (official) and tribal languages; **Literacy:** 45%; **Rel:** Tribal, Christianity and Islam; **Currency:** Franc CFA. \$1 = 504.36; **p.c.i:** \$ 330. **President:** Gen. Gnassingbe Eyadema; **PM:** Edem Kodjo.

The Republic of Togo, formerly Togoland, lies on the west coast of Africa forming a narrow strip stretching from the Gulf of Guinea north to Burkina Faso. Gained independence on Apr. 27, 1960.

The principal products are coffee, cocoa, cotton, palm kernels, kapok and groundnuts. Togo's considerable natural resources are still largely undeveloped. Phosphates, now being mined in increasing quantities, now form the country's principal export.

No representation in India.

Tonga

(Kingdom of Tonga) **Cap:** Nuku alofa; **Area:** 748 sq.km.; **Pop:** 108,000; **Lang:** English and Tongan; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Pa'anga. \$1.35 = Pa'anga 1.42; **p.c.i:** \$ 1,350; **Head of State:** King Taufa'ahau Topou IV. **PM:** Baron Vaea.

Tonga (also called Friendly Islands) consists of 169 islands and islets in the south western Pacific Ocean. The Tropic of Capricorn and the International Dateline cross each other very near Tonga.

First visited by the Dutch in early 17th century, Tonga became a British protectorate in 1900 and independent on June 4, 1970.

Tonga is an agricultural country. Crops: coconuts, bananas, vanilla, coffee, ginger. Copra and bananas exported. Industry: Tourism, coconut products.

Mission in India: Consulate of Tonga, C/o. G.P. (P) Ltd., 17, Chittaranjan Ave, Calcutta - 700072. Tel: 27-3568.

Trinidad And Tobago

(Republic of Trinidad and Tobago) **Cap:** Port of Spain; **Area:** 5128 sq.km.; **Pop:** 1.3 m.; **Lang:**



English; **Literacy:** 96%; **Rel:** Christianity, Hinduism, Islam; **Currency:** Tri & Tob Dollar. \$1 = TT \$5.68; **p.c.i:** \$ 3,940; **President:** Noor Hassanali. **PM:** Patrick Manning.

Trinidad, the second largest and most southerly of the West Indian islands (south of Windward Isles) lies very near the north coast of South America. Attached to it for administrative purposes is the island of Tobago. Tobago is often called Robinson Crusoe Island in the belief that this was the island on which Crusoe was stranded.

Formerly a British Colony, it achieved independence in 1962 and became republic in 1976. The nation is one of the most prosperous in the Caribbean. Those of African descent are 40.8% of the population, Indians 40.7%, mixed races 16.3%, European, Chinese and others 2.2%. Oil production has increased with offshore finds.

Industries include oil processing, manufactured goods, rum, cement and tourism. Chief crops are sugarcane, citrus fruit, cocoa, coffee and bananas.

In July '90, there was a rebellion by some Moslem extremists. Rebels surrendered after 6-day siege.

Mission in India: High Commission for the Republic of Trinidad and Tobago, 131 Jor Bagh, New Delhi - 110003. Tel: 618186.

Tunisia

(Republic of Tunisia) **Cap:** Tunis; **Area:** 164,150 sq.km.; **Pop:** 8.9 m.; **Lang:** Arabic (official) and French; **Literacy:** 65%; **Rel:** Islam; **Currency:** Dinar. \$1 = 0.957; **p.c.i:** \$ 1740; **President:** Gen. Zine el Abidine Ben Ali. **PM:** Hamed Karoui.

A republic in North Africa, lying on the Mediterranean coast and formerly a French protectorate, Tunisia, became autonomous in 1956 and assumed republican status in 1957. It is the site of ancient Carthage.

Tunisia is an agricultural country, and produces wheat, barley, oats, dates, olives, citrus fruits, almonds, figs, vegetables and alfalfa grass.

The saga of Indian triumph in Trinidad

People of Indian origin make up nearly half the population in Trinidad and Tobago. The forefathers of half a million Indo-Trinidadians had arrived on the island's shores 150 years ago to work as indentured labourers on the sugar-cane plantations.

Many of the *jahaajis* (voyagers) who undertook the harrowing journey from Calcutta and Madras perished on the way to the Caribbean islands. Those who survived were shackled to a life of hardship and misery on the estates. They were shackled to a life of hardship and misery on the estates.

Most Indians had been shipped to Trinidad on the pretext that they were being taken to Chinid which was just down the Indian coast. "We were cajoled, fooled and kidnapped," says Krish Jurai, a Trinidadian MP of Indian origin. "We stayed, worked and struggled. And we are proud to say that we have contributed to the building of a strong and economically viable Trinidad and Tobago."

During President Dr. Shankar Dayal Sharma's visit to Trinidad in May, 1995, the survivors of the indenture system and their descendants were celebrating the Indo-Trinidadians' triumph over bondage. Arrival Day, as the celebrations on May 30, were tagged across Trinidad and Tobago, had also become the launch pad for a new phase of progress for the people of Indian origin in the island.

Indentured labourers from India were not the only arrivals in Trinidad. The history of the tiny Caribbean island is one of several arrivals. In fact, only the Amerindians can claim to be an indigenous people of Trinidad: the Caribs, who gave their name to the region, and the Arawaks, who were already in Trinidad when Christopher

Columbus came scouting. Enslaved Africans were gradually shipped to the island to satisfy the demands of the colonial planters for the cheap production of sugar. Chinese and Portuguese labourers, too, were brought to the plantations, but cutting cane was far from them in the blazing tropical heat.

India provided the solution, and waves of indentured labourers flooded Trinidad from Uttar Pradesh, Bihar and the then Madras Presidency. Since the start of the indenture system in 1845 and its end in 1917, more than 1.4 lakh Indians landed in Trinidad. Today, their descendants, and a handful of surviving former indentureds, form nearly 45 per cent of the 1.3 million population of Trinidad and Tobago.

Fatel Razack

Indo-Trinidadians have come a long way since the ship 'Fatel Razack' set sail from Calcutta and brought the first batch of indentured labourers to the island's shores on May 30, 1845. "Through sacrifice and determination, the Indian Community eventually gained their rightful place in the multi-ethnic Trinidadian society," noted President Sharma, who was the chief guest at the various Arrival day celebrations that were held

all over the country to mark the landing of 'Fatel Razack'.

It was indeed a moment of arrival for the Indo-Trinidadians. They have prospered, and created a niche for themselves in Trinidadian society. Indian achievers are now found in every field—medicine, law, engineering and public service—and many of them have become leaders in their respective businesses.

President Noor Hassanal of Trinidad is a descendant of



In the green room: Arrival Day functions in Trinidad.



The roots: Dr. S. D. Sharma with President Noor Hassanali of Trinidad, who is a descendant of indentured labourers from India.

indentured labourers. So is Basdeo Panday, the opposition leader, and Occah Seapaul, the Speaker of the national assembly. The most prominent literary figures of the country are of Indian origin too, and include Sir V.S. Naipaul and his brother Shiva, Samuel Sevon and Ismith Khan.

Indo-Trinidadians glow with pride every time local boys Shivnarine Chanderpaul and Rajendra Dhanraj hit the headlines with their exploits for the West Indies team. "But they are not as good as some other Indian origin cricketers of the past like Sonny Ramadhin, Alvin Kallicharran and Rohan Kanhai," says Subhash Gupte, the Indian spin wizard who once mesmerised the best of batsmen around the world.

A little India

The capital Port-of-Spain is a little India. There are any number of shops in the city luring customers with hot *rotis*. There seem to be more Ramsharuns and Gobhardhans in the Trinidadian capital than in the whole of India. Why, there are even Calcutta and Madras Streets!

Till a few years ago, most Indo-Trinidadians had tried to distance themselves from Indian culture. "It was not hip being Indian. But today,

there is a renaissance of Indian awareness," says Radica Saith, author of the diary *1845-1995, 150 Years of East Indian Arrival*. "Now it is okay to be Indian once more. People want to find out about their roots".

A small group of people from the Presbyterian church, is determined to revive the tradition of singing bhajans during service. Traditional instruments such as *dholaks*, *dhantals* and *kharials* are used by the choir.

Half the cinema halls in the country show the latest Hindi films. Gala programmes featuring Indian film stars in Trinidad are a sell-out.

Another popular Indian contribution is chutney music, a blend of calypso, rock and rap garnished with a smattering of Hindi, Bhojpuri and English. That the chutney is a bit hit among people of African origin as well speaks of the Indo-Trinidadians' ability to adapt. They had battled the odds and overcome discrimination to emerge as one of the pillars of the Trinidadian society. Knowing their past, one can be sure that chutney will lead to more winning Indian flavours in the future.

Stanley Thomas

of 'The Week', who covered the President's visit to Trinidad and Tobago

The chief minerals are phosphates, iron, lead and zinc. Industry: Oil production, textiles, leather, fertilizers. The principal exports are olive oil, wine, phosphates and grains.

Tunisia has actively repressed Islamic fundamentalism.

Mission in India: Embassy of Tunisia, 23 Olof Palme Marg, Vasant Vihar, New Delhi - 110 057. Tel: 6885346; Fax: 6885301.

Turkey

(Republic of Turkey) **Cap:** Ankara; **Area:** 779,452 sq.km.; **Pop:** 61.9 m.; **Lang:** Turkish, Kurdish, Arabic; **Literacy:** 80%; **Rel:** Secular, main religion Islam; **Currency:** Turkish Lira. \$1 = 41,699; **p.c.i:** \$2931; **President:** Suleyman Demirel; **PM:** Mrs Tansu Ciller.

A republic in south eastern Europe and Asia Minor, Turkey occupies a strategic position, linking as it does Asia and Europe at the Straits of Bosphorus, between the Mediterranean and the Black Sea. The major portion of Turkey lies in Asia Minor.

Asiatic Turkey, that is, Anatolia, was the seat of one of the earliest civilizations known. Istanbul, the largest city, was first known as Byzantium and then as Constantinople. The Ottoman Turks conquered Constantinople in 1453 and founded a Turkish Empire. Just before World War I, Turkey or the Ottoman Empire, ruled what is now Syria, Lebanon, Iraq, Jordan, Israel, Saudi Arabia, Yemen and islands in the Aegean Sea. In 1923 Turkey became a republic.

Religious and ethnic tensions and active left and right extremists have caused endemic violence.

Some 12 m Kurds live in Turkey. Kurdish militants demand an independent state for the Kurds.

Agriculture maintains about 64 per cent of the population. The chief products are tobacco, wheat, cotton, olive oil and sugar. Turkey is the world's second largest producer of sultana raisins. Sheep and cattle abound in the plateau of Anatolia and provide mohair for which Turkey is famous. The main minerals are iron ore, copper, chromium, bauxite and coal. Industry: Iron, steel, machinery, petroleum, metal products, cars, processed foods.

Mission in India: Embassy of Turkey, N 50, Nyaya Marg, Chanakyapuri, New Delhi - 110021. Tel: 601921.

Consulates General: Mistry Court, 5th Floor, 208, Dinshaw Wachha Road, Churchgate, Bombay-400 020; Tel: 240992.

2 Nazar Ali Lane, Ballygunge, Calcutta -

700 019. Tel: 2471601.

Lingichetty Lane, Madras. Tel: 459101, 459452.

Turkmenistan

(Republic of Turkmenistan) Turkmenistan Respublikasy **Cap:** Ashkhabad (Poltoratsk); **Area:** 488,100 sq.km.; **Pop:** 4.1 m.; **Language:** Turkmen, Russian; **Religion:** Islam; **Currency:** Ruble. New Currency: Manat, \$1=230; **p.c.i:** 1270; **President & PM:** Saparmurad Niyazov.

A former Soviet republic, Turkmenistan is bounded by the Caspian sea on the west. Its neighbours are Uzbekistan, Iran and Afghanistan. The Kara Kum desert occupies 80% of the area.

In Oct. 1991, Turkmenistan adopted a declaration of independence, and became a member of the CIS in Dec.

Agriculture: Produces maize, grapes, fruit and vegetables, cotton, wool, fur; **Sericulture** too.

Natural resources: Ozocerite, oil, coal, sulphur, salt magnesium.

Industry: Food, textile, chemical, cement, agricultural implements, ferroconcrete, footwear, knitwear.

Mission in India: Embassy of Turkmenistan, 1/13, Shatiniketan, New Delhi-110021; Tel: 6118409; Fax: 6118332.

Tuvalu

Cap: Funafuti; **Area:** 26 sq.km.; **Pop:** 10,000; **Lang:** Tuvaluan, English; **Literacy:** 96%; **Rel:** Christianity; **Currency:** Australian Dollar. (Tuvaluan coins also upto A\$1) \$1 = A\$ 1.42; **p.c.i:** \$ 500 (1984); **Gov. Gen.:** Tulaga Manuella; **PM:** Kamuta Latasi.

Formerly known as the Ellice Islands, Tuvalu is a scattered group of nine small atolls in the Western Pacific Ocean and one of the world's smallest independent nations. It became independent in 1975 under the name Tuvalu. Full independence was granted on September 30, 1978.

The poor quality of the soil permits subsistence farming of coconuts only. Most of the foreign exchange is earned through the sale of postage stamps and coins, copra and from remittances by Tuvaluans abroad.

Uganda

(Republic of Uganda) **Cap:** Kampala; **Area:** 241,139 sq.km.; **Pop:** 21.3 m.; **Lang:** English

Uganda and Swahili; **Literacy:** 52%; **Rel:** Tribal, Islam and Christianity; **Currency:** Uganda Shilling. \$1 = 921.44; **p.c.i:** \$ 190; **resident:** Yoweri Museveni. **PM:** George Adyebo.

Uganda is an equatorial state in East Africa. Formerly a British protectorate, Uganda became independent in 1962 and a republic in 1963. A military coup led by Lt. Gen. Tito Okello ousted Milton Obote's govt. in 1985. Milton Obote had himself come to power after ousting dictator Idi Amin in 1979. In 1972 nearly all of Uganda's 15,000 Asians were expelled. In 1987 the currency was devalued by 77%.

The economy is agricultural. Main products are cotton and coffee.

Industry: Tea, sugar, tobacco, textiles, beer and cement. **Minerals:** Copper, cobalt.

Mission in India: High Commission of Uganda, B-3/26, Vasanth Vihar, New Delhi-110 057; Tel: 6874112; Fax: 6874405.

The Ukraine

(Ukrayina) **Cap:** Kiev; **Area:** 603,700 sq.km.; **Pop:** 51.4 m.; **Language:** Ukrainian, Russian; **Religion:** Christianity, Islam; **Currency:** Karbovanets (ruble) \$1=122,992.. **New Currency:** Hryvnia; **p.c.i:** \$1670; **President:** Leonid Kuchma; **PM:** Yevgeny Marchuk..

The Ukraine in south-west former USSR became independent in Dec., 1991. It has a Black Sea coast and western frontiers with Romania, Hungary, Poland and Czechoslovakia and is bounded north by Byelorussia and otherwise by Russia.

It is the most densely populated of the former Soviet republics.

Ukraine, the second richest former Soviet republic, contains some of the richest land in former USSR. In 1985, it produced 46% by value of the former Union's total agricultural output. It is considered the Soviet wheat belt. Inflation of consumer prices was 45,900% in 1993. In Jan, 1994, an agreement was reached between Presidents of Russia, the Ukraine and the USA providing for the removal of all former Soviet nuclear missiles from Ukrainian territory.

Agriculture: Wheat, sugarbeet, sunflower, cotton, flax, tobacco, soya, fruit and vegetables, meat, milk.

Natural resources: Coal, iron ore, manganese, oil, salt, chemicals.

Industry: Ferrous metallurgical, chemical, machinery, paper, television, consumer goods, food industries.

Mission in India: Embassy of Ukraine, 176, Jor Bagh, New Delhi-110 003; Tel: 4616019; Fax: 4616085.



United Arab Emirates

Ittihad al-Imarat al-Arabiyyah **Cap:** Abu Dhabi; **Area:** 82,880 sq.km.; **Pop:** 1.9 m.; **Lang:** Arabic; **Literacy:** 68%; **Rel:** Islam; **Currency:** Dirham. \$1 = 3.67; **p.c.i:** \$ 22,220. **President:** Sheik Zaid Ibn Sultan al Nahayan (of Abu Dhabi). **Vice President and PM:** Sheik Maktoum bin Rashid al-Maktoum (of Dubai).

The United Arab Emirates consist of seven autonomous emirates in the Persian Gulf—Abu Dhabi, Dubai, Sharjah, Umm-al-Qaiwain, Ajman, Fujairah and Ras-al-Khaimah. Ethnic groups: Arab, Iranian, Indian, Pakistani. About one-tenth are nomads. The first six Sheikdoms signed the Union Agreement on 2nd Dec., 1971. Ras-al-Khaimah joined the Union in Feb., 1972. These were formerly referred to as the 'Trucial States'. Most of the land is barren and sandy. Rainfall is limited and erratic.

Abu Dhabi, which is the capital of the Union, is the largest of the Emirates in area. Dubai is the main port of the Union and now has the largest harbour in West Asia. The economy of UAE is almost entirely dependent on oil. Oil revenues have given UAE one of the highest per capita GNPs in the world. Chief cities : Abu Dhabi, Dubai, Sharjah, Ras al-Khaimah.

Agriculture: Vegetables, dates, meat.

Industry: Petroleum, light manufactures, construction materials, fish.

International banking has developed in recent years.

Mission in India: Embassy of UAE, EP-12, Chandra Gupta Marg, Chanakyapuri, New Delhi-110 021. Tel: 670830; Telex: 31-72325 EMAT IN.

Consulate: Bungalow No. 7, Jolly Maker Apartment, Cuffe Parade, Colaba, Bombay-400-005. Tel: 2183021.

United Kingdom

United Kingdom of Great Britain and Northern Ireland **Cap:** London; **Area:** 244,108 sq km; **Pop:** 58.3 m.; **Lang:** English, Welsh, Scots and

Gaelic; Literacy: 99%; **Rel:** Christianity; **Currency:** Pound Sterling. \$1=0.62; **p.c.i:** \$ 17,760; **Head of State of U.K.:** Queen Elizabeth II, **PM:** John Major.

The United Kingdom of Great Britain and Northern Ireland comprises the island of Great Britain, Northern Ireland, and many small islands. It is separated from the coast of Western Europe by the English Channel to the south and by the North Sea to the east. The northern and western shores are washed by the Atlantic Ocean.

Great Britain is the largest of the islands forming the United Kingdom. It comprises England, Scotland, Wales, (the Isle of Man and the Channel Islands) St. George's Channel and the Irish Sea lie between the UK and Ireland. Britain is much less than half the size of France or Germany and would fit forty times into the United States of America. Yet, for hundreds of years this island has been a world power. From its shores men set out to lay the foundation of what is now the United States of America and to develop Canada, Australia, New Zealand, the Indian continent and great areas of Africa. British institutions and methods of government have set the pattern for lovers of freedom everywhere. And today, Britain's Queen is the Head of a family of several million people, spread all over the world.

Severn and Thames are the longest rivers. The most famous church is Westminster Abbey. The most celebrated Universities are Oxford and Cambridge. There are about 40 other universities.

Great Britain is a constitutional monarchy. The sovereign is the Head of State and monarchy is hereditary. Actual power is vested in Parliament which is the supreme legislative body in Great Britain. The Parliament consists of two houses- the House of Lords and the House of Commons.

Britain is one of the world's leading industrial and exporting countries. Chief industries are iron and steel, engineering, chemicals, electronics, motor vehicles, metals, machinery, ship building, aircraft, textiles, cloth, other consumer goods and banking. Metals and metal using industries contribute more than 50% of the exports. Britain's coal mines yield about 128 million tons annually. Although Britain's agriculture and trawler-fishing are highly mechanised, half of the country's food supplies and most of its raw materials are imported. Chief crops: Grains, sugar, fruits, vegetables. North Sea oil is a lately added boon to British economy.

Wales: The principality of Wales in Western Britain has a population of 2,87,500. Cardiff is

the capital. English and Welsh are spoken.

Scotland: Scotland occupies the northern 37% of the main British island, and the Hebrides, Orkney, Shetland, and smaller islands. Population: 5,094,000. Edinburgh is the capital.

Northern Ireland is situated in the north-east of Ireland and forms part of the United Kingdom. It comprises six Ulster counties of Antrim, Down, Armagh, Fermanagh, Londonderry and Tyrone. The rest of the island forms the Republic of Ireland. Northern Ireland has been rocked by bloody agitation for union with Catholic Irish Republic. 1985 saw an Anglo-Irish agreement which for the first time gave Dublin a say in the running of the province. **Pop:** 1,578,000 and **Capital:** Belfast.

Agriculture is the main occupation in Northern Ireland. Cattle, sheep, hogs, eggs, poultry, potatoes and milk are the important products. Linen, ropes, twines, rayon, clothing, tobacco, aircraft and shipping form the main branches of industry.

Britain's Dependent Territories

Anguilla*, Bermuda*, British Antarctic Territory, British Virgin Islands, Cayman Islands, Falkland Islands, Gibraltar, Hong Kong*, Montserrat*, Pitcairn, Ducie, Henderson and Oeno, St. Helena and St. Helena Dependencies (Ascension and Tristan da Cunha), South Georgia and the South Sandwich Islands and Turks and Caicos Islands.

Isle of Man and the Channel Islands are direct dependencies of the Crown with their own legislative and taxation systems.

Isle of Man: It is in the Irish sea. **Area:** 57 sq.km. **x Population:** **Area:** 57 sq.km. **Pop:** 70,000. **Capital:** Douglas.

The Channel Islands: Off the North-West coast of France are Jersey, Guernsey and the dependencies of Guernsey. **Population:** 145,000.

Mission in India: British High Commission. Shantipath, Chanakyapuri, New Delhi-110 021. **Tel:** 6872161; **Fax:** 6872882..

Dy High Commissions: Hong Kong Bank Building, M.G. Road, Bombay-400 023. **Tel:** 230517.

1, Ho Chi Minh Sarani, Calcutta-700 071. **Tel:** 225171.

24, Anderson Road, Madras-600 006. **Tel:** 470658.

Anguilla*: (Formerly Part of St. Kitts-Nevis Anguilla, it became defacto a separate dependency of Britain in 1969; new constitution in 1982. **Area:** 155 sq.km. **Pop:** 8960 **Cap:** The Valley).

Bermuda*: Bermuda is a group of some 300 small coral islands in the Western North

Atlantic. They are said to have been discovered by a Spaniard Juan de Bermudesz in 1650. In 1968 it was given the status of a British Associate State with full internal autonomy. England's oldest and richest colony, Bermuda has been considering independence, after 400 years of British rule. In a referendum in Aug. '95, Bermudans chose to reject independence.

Area: 53.3 sq.km; **Pop:** 72000; **Cap:** Hamilton. Population is 60% black. Persons of British or Portuguese stock form the rest.

The chief crops are vegetables, flowers, (East-ter lilies specially), bananas and citrus fruits. Tourism is the main source of revenue.

Hong Kong*: **Cap:** Victoria; **Area:** 1071 sq.km; **Pop:** 5.9 m.; **Lang:** English and Cantonese; **Literacy:** 75%; **Rel:** Confucianism and Buddhism; **Currency:** Hongkong Dollar \$1 = 7.78; **p.c.i.:** \$15,380; **Gov. Gen.:** Chris Patten.

Lying along the south east coast of China, at the mouth of the Canton river, Hong Kong comprises Hong Kong island, Kowloon Peninsula, the New Territories and over 230 small islands. Hong Kong has been a British colony since 1843. The New Territories were acquired by Britain in 1898 by lease for 99 years. According to an agreement reached in 1984, China would recover sovereignty over Hong Kong from 1 July 1997 and establish it as a Special Administrative Region. Hong Kong would be allowed to keep its capitalist system for 50 years after 1997, the year that the 99 year lease will expire.

The population is almost entirely Chinese with a sprinkling of other nationalities, one of the world's

Montserrat*: **Cap:** Plymouth; **Area:** 102 sq.km; **Pop:** 12,000; **Lang:** English and Patois; **Literacy:** 53%; **Rel:** Christianity; **Currency:** Eastern Caribbean Dollar; \$1 = \$2.69; **p.c.i.:** \$3127 (1985); **Gov:** F.J.Savage; **Chief Minister:** Reuben Meade.

Montserrat in the Caribbean Sea, like Antigua, is one of the Leeward Islands. Its population is of mixed European-Negro origin. Europeans proper form a minority. Agriculture is the mainstay of the people. Sea island cotton, vegetables like tomatoes and cattle form the main exports. There are small scale industries producing light consumer goods.

From 1871 to 1956, it formed part of the federal colony of the Leeward Islands. The island, a British Associate State with full internal autonomy, adopted a constitution in 1960.

No representation in India. greatest shipment ports.



United States of America

United States of America. **Cap:** Washington D.C.; **Area:** 9,372,614 sq.km.; **Pop:** 263.3 m.; **Lang:** English; **Literacy:** 99%; **Rel:** Christianity; **Currency:** Dollar. **p.c.i.:** \$ 23,120; **President:** William Jefferson Clinton

The United States of America is a federal republic composed of 50 states, of which all except one - Hawaii islands - are in mainland America.

The United States of America, which covers the central part of North America, grew out of the British colonies that were established in North America in the first half of the 17th century.

The Declaration of Independence of the 13 states of which the American Union then consisted was adopted by Congress on July 4, 1776.

USA's participation in the First World War and the victory of the Allies made it a world power. The end of the Second World War saw the emergence of USA as one of the super-powers of the world.

The Union originally comprised 13 states, to which 7 were added subsequently. Thirty other states, which were formerly territories, were also admitted into the Union as full states, thus making up 50 states in all, apart from the District of Columbia. Each state has its own constitution. The State constitutions provide for a legislature of two Houses, (except Nebraska which has only one House) a Governor and a judicial system of its own. The state governments can deal with all matters which are not reserved for the federal legislature. The following table gives the existing states of the Union with their postal abbreviations, capitals, area and population.

States of the Union

Name	Capital	Area (sq km)	Population (1990)
Alabama (AL)*	Montgomery	133916	4,040,587
Alaska (AK)	Juneau	1530700	550,043
Arizona (AZ)	Phoenix	295260	3,665,228
Arkansas (AR)	Little Rock	137754	2,350,725

California(CA)	Sacramento	411049	29,760,021
Colorado(CO)	Denver	269596	3,294,394
Connecticut(CT)	Hartford	12997	3,287,116
Delaware(DE)	Dover	5294	666,168
District of Columbia(DC)	Washington D.C	179	606,900
Florida(FL)	Tallahassee	151940	12,937,926
Georgia(GA)	Atlanta	152577	6,478,216
Hawaii(HI)	Honolulu	16760	1,108,229
Idaho(ID)	Boise	216431	1,006,749
Illinois(IL)	Springfield	145934	11,430,602
Indiana(IN)	Indianapolis	93719	5,544,159
Iowa(IA)	Des-Moines	145752	2,776,755
Kansas(KS)	Topeka	213097	2,477,574
Kentucky(KY)	Frankfort	104659	3,685,296
Louisiana(LA)	Baton Rouge	123678	4,219,973
Maine(ME)	Augusta	86156	1,227,928
Maryland(MD)	Annapolis	27091	4,781,468
Massachusetts(MA)	Boston	21456	6,016,425
Michigan(MI)	Lansing	151585	9,295,297
Minnesota(MN)	St. Paul	218601	4,375,099
Mississippi(MS)	Jackson	123515	2,573,216
Missouri(MO)	Jefferson city	180515	5,117,073
Montana(MT)	Helena	380849	799,065
Nebraska(NE)	Lincoln	200349	1,578,385
Nevada(NV)	Carson City	286353	1,201,833
NewHampshire(NH)	Concord	24033	1,109,252
New Jersey(NJ)	Treton	20168	7,730,188
New Mexico(NM)	Santa Fe	314923	1,515,069
New York(NY)	Albany	127190	17,990,455
North Carolina(NC)	Raleigh	136413	6,628,637
North Dakota(ND)	Bismarck	183118	638,800
Ohio(OH)	Columbus	107045	10,847,115
Oklahoma(OK)	Oklahoma City	181186	3,145,585
Oregon(OR)	Salem	251419	2,842,321
Pennsylvania(PA)	Harrisburg	117348	11,881,643
Rhode Island(RI)	Providence	3139	1,003,464
South Carolina(SC)	Columbia	80583	3,486,703
South Dakota(SD)	Pierre	199730	696,004
Tennessee(TN)	Nashville	109153	4,877,185
Texas(TX)	Austin	691030	16,986,510
Utah(UT)	Salt Lake City	219888	1,722,850
Vermont(VT)	Montpelier	24900	562,758
Virginia(VA)	Richmond	105587	6,187,358
Washington(WA)	Olympia	176480	4,866,692
West Virginia(WV)	Charleston	62758	1,793,477
Wisconsin(WI)	Madison	145436	4,891,769
Wyoming(WY)	Cheyenne	253325	453,588

US 248,709,873

*Postal two-letter (both capitals) abbreviations for U.S. states were introduced with the ZIP Code in 1963. These are fast replacing the older abbreviations.

Territories and other outlying areas

Place	Area (sq km)	Population
Puerto Rico	8891	3,700,000
Virgin Islands,	342	101,809
Guam	541	133,152
American Samoa	199	52,860
Canton Island and Enderbury Island	70	0

Midway Islands	5	453
Wakel Island	8	302
Johnston Island and Sand Island	1.3	327
Northern Mariana Islands	477	45,200
Trust Territory of the Pacific Islands	1380	NA

Agriculture: Main crops are maize, wheat, soya beans, barley, oats, rice, sugar, potatoes, cotton, tobacco and dairy products.

Industries: Iron and steel, food and kindred products, chemicals, metal products, electronic equipment, machinery, transportation equipment, paper, petroleum products, fertilizers, plastics.

Minerals: Coal, copper, lead, phosphates, uranium, zinc, gold, silver, iron, molybdenum, oil.

Exports: Machinery, chemicals, motor vehicles, aircraft, military equipment, grains, cereals.

Mission in India: Embassy of USA, Chanakyapuri, New Delhi - 110021. Tel: 600651.

Consulates: Lincoln House, 78 Bhulabhai Desai Road, Bombay - 400026; Tel: 3633611

5/1 Ho Chi Minh Sarani, Calcutta - 700071. Tel: 225757.

220, Annasalai, Madras - 600006. Tel: 473040

Outlying Territories:

Puerto Rico: (Commonwealth of Puerto Rico); Cap: San Juan; Area: 8891 sq.km; Pop: 3.7 m.; Lang: Spanish and English; Rel: Christianity; Currency: Dolla; p.c.i: \$4,300 Govenor: Dr.Pedro Rossello.

The island of Puerto Rico lies 80 km east of Hispaniola (Haiti and Dominican Republics) in the outer Caribbean. In 1952, it ceased to be colonial possession and became a free Commonwealth. It has close association with U.S. People have U.S. citizenship with no voting rights.

From a purely agricultural country, Puerto Rico (formerly Porto Rico) is fast changing to an industrial economy and is the wealthiest Caribbean island. "The Poor house of the Caribbean" was changed to an area with one of the highest standards of living in Latin America thanks to the famous "Operation Bootstrap" begun in the late 40s.

In a referendum in November, 1993, Puerto Ricans said no to total merger with USA.

The main crops are sugar, tobacco and coffee. Industries include textiles, clothing, cigars, alcohol, chemicals and household appliances. Tourism is an important source of revenue.

Guam: Area: 541 sq.km.; Pop: 133,152; Cap: Hagatna.

Commonwealth of the N. Mariana Is: Area: 477 sq.km.; Pop: 45,200; Cap: Saipan.

American Samoa: Area: 199 sq.km. Pop: 2,860; Cap: Pago Pago.

Other Pacific territories: Johnston Atoll Two small islands 1150 km. southwest of Hawaii. **Pop:** 327(1980); Midway Islands (Two small islands at the western end of the Hawaiian chain. **Pop:** 453 (1980), Wake Island (Three small islands 3700 k.m. west of Hawaii. **Pop:** 302(1980).

Virgin Islands of the United States: Area: 342 sq.km. **Pop:** 101,809; **Cap:** Charlotte Amalie.

Uruguay

(Republic of Uruguay) **Cap:** Montevideo; **Area:** 176,215 sq.km.; **Pop:** 3.2 m.; **Lang:** Spanish; **Literacy:** 96%; **Rel:** Christianity; **Currency:** Peso. \$1 = 5.85; **p.c.i.:** \$ 3340; **President:** Julio Maria Sanguinetti.

The smallest republic in South America, Uruguay lies in southern S. America, on the Atlantic Ocean.

Formerly a part of the Spanish Viceroyalty of Rio de la Plata and subsequently a province of Brazil, Uruguay became independent on August 25, 1825.

Livestock-raising is Uruguay's principal occupation and takes up 60 per cent of its total land area. The chief products are meat, wool, hides, corn, wheat, citrus fruit, rice, tobacco, oats and linseed. Important industries are winery, meatpacking, textiles, cement and oil products.

The welfare programmes earned Uruguay a reputation as the Switzerland of Latin America. No representation in India.

Uzbekistan

Ozbekiston Respublikasy **Cap:** Tashkent; **Area:** 447,400 sq.km.; **Pop:** 22.8 m.; **Lang:** Uzbek, Russian; **Religion:** Islam; **Currency:** Ruble. New Currency: the Som, **p.c.i.=**1,350; **President:** Islam Karimov; **PM:** Abdul Hashim Mutalov.

A former Soviet republic that became independent in Dec., 1991, Uzbekistan is bordered by Kazakhstan, Kirghizia, Tadzhikistan, Afghanistan and Turkmenistan.

Agriculture: Uzbekistan has an excellent record in agriculture. It is the chief cotton-



growing area in former Soviet Union and the third in the world. It produces 65% of the total cotton, 50% of the total rice and 60% of the total lucerne grown in the former union. Intensive farming based on artificial irrigation is practised. Crops: cotton, lucerne, grain, potatoes, vegetables, grapes, fruit and berries.

Natural resources: Oil, coal, copper, ozocerite, building materials.

Industry: Agricultural machinery, cement, textiles, paper, ferroconcrete.

Mission in India: D4/6, Vasant Vihar, New Delhi-110057. Tel: 6119035; Fax: 6873246.

Vanuatu

(Republic of Vanuatu) **Ripablik Blong Vanuatu.** **Cap:** Vila; **Area:** 14,760 sq km; **Pop:** 174,000; **Lang:** English, French and Bislama; **Literacy:** 90%; **Rel:** Christianity, animism; **Currency:** Vatu. \$1 = 112; **p.c.i.:** \$ 1120; **President:** Jean Marie Leye; **PM:** Maxime Carlot.

The Anglo-French condominium of the New Hebrides became independent under the name Vanuatu on July 30, 1980. It is a double chain of 13 large and 80 small islands in South West Pacific. The largest island is the Espiritu Santo. Originally a haunt of European pirates, they came under the control of France and Britain in 1906.

The population is overwhelmingly Melanesian. The major cash crops are copra, coffee and cocoa. Industry: Fish-freezing, meat canneries, tourism. Manganese has been mined since 1961 and exported to Japan.

Vatican City

(The Holy See) **Sato della Cittadel Vaticano.** **Cap:** Vatican City, **Area:** 0.4 sq km, **Pop:** 1000; **Lang:** Latin and Italian, (All languages accepted); **Rel:** Christianity. (Catholic). **Currency:** Lira; \$1 = Lire 1656. **Supreme Pontiff:** Pope John Paul II (Karol Wojtyla). **Secretary of State:** Angelo Sodano.

The Vatican city state, sovereign and independent, is situated on the Vatican hill, on the right bank of the Tiber, within the commune of Rome, Italy. It is completely surrounded by Italy.

Vatican City, the City of the Pope, includes St. Peter's Cathedral, Vatican Palace and Museum, the Vatican Gardens and neighbouring buildings. Vatican has its own railway station (for freight only), postal system, police, coins and radio. Radio Vaticana broadcasts an extensive service in 34 languages.

The city state is governed by a commission appointed by the Pope, who has full legal, executive and judicial powers.

Mission in India: Apostolic Nunciature, 50-C, Nitimarg, Chanakyapuri, New Delhi-110 021. Tel: 606921. Fax: 6874286.

Vatican going on-line

No more thefts in the Vatican library. The Vatican is going on-line. It can reach many more scholars, and that without wear and tear on the manuscripts, or theft.

Recently, Vatican officials were shocked to learn that a visiting American art scholar had apparently pilfered three pages of a 14th century manuscript and put them up for sale.

Written artifacts dating from as early as the second century are about to meet the medium of the 21st.

Scholars look forward to surfing the Roman Empire, the Middle Ages, the Renaissance, etc.

The meeting of ages is taking place at the Vatican Apostolic Library, where technicians are making digital images of thousands of pages of precious ancient manuscripts so that they can be viewed worldwide via the Internet.

It the Reverend Leonard Boyle, 71, a witty Benedictine priest and the library's director, has his way, scholars and amateurs alike will gain access to 150,000 documents at home in front of a computer.

In Father Boyle's eyes, putting knowledge on the electronic superhighway is an obvious extension of the path blazed by the inventors of paper, by the builders of the roads of the Roman Empire and by the creators of the printing press, radio and television.

"It would be foolhardy to stop now," he said.

Venezuela

(Republic of Venezuela) Republica de Venezuela **Cap:** Caracas; **Area:** 912,050 sq km; **Pop:** 21.8 m.; **Lang:** Spanish; **Literacy:** 88%; **Religion:** Christianity; **Currency:** Bolivar, \$1=112.2; **p.c.i:** \$2900; **President:** Rafael Caldera.

Venezuela (Little Venice) on the Caribbean coast is the northernmost state of South America. Sighted by Columbus in 1498, it was formerly a Spanish colony. Venezuela became independent in 1821 and a republic in 1830. Since 1958 it has had democratically elected governments. Venezuela is the richest and most urbanised Latin American nation. The world's highest waterfall, Angel Falls, with an overall drop of 984 m. is in Venezuela.

Venezuela is one of the world's leading producers of oil and is a member of the OPEC. Venezuela is rich in diamonds and ranks 8th in world production. Other minerals are iron, steel, aluminium, copper, tin and manganese. Agricultural products include coffee, cocoa, bananas, maize, rice and sugar.

Mission in India: Embassy of Venezuela, 114, Panchashila Park, New Delhi-110 017. Tel: 6436535; Fax: 6471686.

Vietnam

(Socialist Republic of Vietnam) Cong Hoa Xoi Chu Nghia Viet Nam. **Cap:** Hanoi; **Area:** 329,566 sq. km; **Pop:** 74.5 m.; **Lang:** Vietnamese, French, English, Chinese; **Literacy:** 86%; **Religion:** Taoism, Buddhism, Confucianism, Christianity, Islam; **Currency:** Dong, \$1=11,212; **p.c.i:** 230; **President:** Le Duc Anh; **PM:** Vo. Van Kiet.

The Socialist Republic of Vietnam (comprising former North and South Vietnam) is a mountainous country in south east Asia. Running almost its entire length, is a mountain chain—the Annamite Chain. On one side of the mountain chain is the fertile Red River delta in the north and on the other side is the Mekong delta in the south. The two deltas form the rice bowl of the country.

The unification of North and South Vietnam into the socialist Republic of Vietnam took place formally on July 2, 1976.

The country is primarily agricultural. Rice is the dominant crop and an export item. Other crops are rubber, sugarcane, coffee, maize and tea. Minerals include coal, tin, copper, chromium and phosphate. Industry: Cement, metallurgy, chemicals, paper, food processing and textiles.

Mission in India: Embassy of the Socialist Republic of Vietnam, 17, Kautilya Marg, Chan-

apuri, New Delhi-110 021. Tel: 3018059; Fax: 3017714.

Western Samoa

(Independent State of Western Samoa)
 alotuto'atasi o Samoa i Sisifo. **Cap:** Apia; **Area:** 335 sq km. **Pop:** 204,000; **Lang:** Samoan and English; **Literacy:** 90%; **Rel:** Christianity; **Currency:** Tala, \$1=Tala 2.45; **p.c.i:** \$940; **Head of state for life:** Malietoa Tanumafili II. **PM:** Tofilau Eti Alesana.

Western Samoa in South Pacific consists of the two large islands of Savaii and Upolu, the small islands of Manono and Apolima and several uninhabited islets lying off the coast. The International Dateline passes very near Western Samoa. Eastern Samoa (American Samoa) with its capital at Fagotogo remains a dependency of the USA. (area: 197 sq.km.).

A former German protectorate, Western Samoa was administered by New Zealand from 1920 to 1961. Became fully independent on Jan.1, 1962. Has close links with New Zealand, in which it is dependent for military and economic assistance.

The economy is mainly agricultural. The chief products are fish, copra, bananas, taro, sweet potatoes, bark cloth and mats.

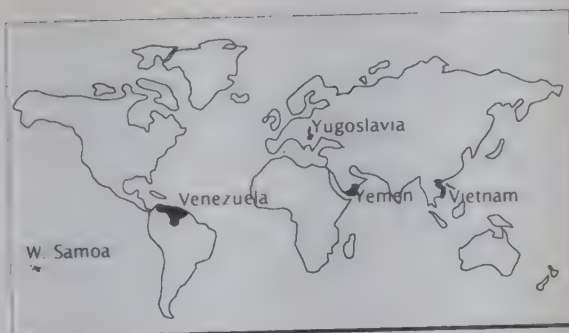
Yemen

(Republic of Yemen) **Cap:** Sana'a; **Commercial capital:** Aden; **Area:** 531,000 sq km; **Pop:** 14.5 m.; **Lang:** Arabic; **Literacy:** 38%; **Rel:** Islam; **Currency:** Rial \$1=82.50; **p.c.i:** \$540; **President:** Col Ali Abdullah Saleh **PM:** Lt.Gen. Abd Al-Aziz, Abd Al-Ghani..

North and South Yemen merged in May 1990 into a United Republic of Yemen in the south west of the Arabian peninsula. North Yemen was established in 1962 while South Yemen (formerly Aden and the Protectorate of South Arabia) became independent in 1967.

In April '94 battle began between army units from the South and the North. Emergency was declared on May 5. On 21st, S.Yemen declared itself an independent state, breaking away from united Yemen. The two month civil war ended on July 7, '94 when Aden, the southern city fell to the northern forces. Losses caused by the conflict is estimated at \$3 bn.

Centuries ago Yemen was a rich land of exotic spices, frankincense and myrrh. The legendary Queen of Sheba ruled the kingdom then known as Happy Yemen. However, South Yemen became the Arab world's only Marxist



nation after independence from Britain in 1967.

The economy is chiefly based on oil and agriculture. The main agricultural products are coffee, dates, herbs, fruits, wheat, millet and maize. Cotton, coffee, hides and skins are exported. Industries: Food processing, mining, petroleum refining.

Mission In India: Embassy of the Republic of Yemen, B-70, Greater Kailash-I, New Delhi-110 048, Tel: 6414731; Fax: 6451346.

Consulate: 102 Maker Tower, F 10th Floor, Cuffe Parade, Bombay.2181586

Yugoslavia

(Federal Republic of Yugoslavia) **Cap:** Belgrade; **Area:** 102,173 sq km; **Pop:** 10.8 m.; **Lang:** Serbo-Croatian, Albanian, Slovenian, Macedonian; **Literacy:** 90%; **Religion:** Christianity and Islam; **Currency:** New Dinar equivalent to DMI (Jan'94); **p.c.i:** \$5,040; **President:** Zoran Lilic; **PM:** Radoje Kontic; **President of Serbia:** Slobodan Milosevic;

PM: of Serbia: Mirko Marjanovic; **President of Montenegro:** Momir Bulatovic. **PM:** Milo Djukanovic.

Present-day Yugoslavia is a federation of the former republics of Serbia and Montenegro, and the autonomous provinces of Kosovo and Vojvodina within Serbia. Yugoslavia is bounded by Hungary, Romania, Bulgaria, Greece Albania, Croatia and the Adriatic Sea.

A Balkan State, Yugoslavia grew out of a petty principality Serbia which was independent since 1878. It consisted of six republics (Serbia, Croatia, Slovenia, Montenegro, Bosnia Herzegovina and Macedonia) and the two autonomous provinces of Kosovo and Vojvodina. Ethnic groups: Serbs 36%, Croats 20%, Bosnian Muslims 9%, Slovenes 8% Macedonians 6%, Albanians 8%, Montenegrins 3%, others 10% Yugoslavia became a republic in 1945. After 45 years of communism, it moved towards democracy. The great

Yugoslav leader President Marshal Tito, a communist who rejected the Stalinist policy and accepted economic aid and military equipment from the West, died in 1980.

In 1990, rebellious republics endangered federal unity. In June, 1991, Slovenia and Croatia declared independence.

Civil war erupted in Croatia, and then spread to Bosnia. Ethnic violence led to death of thousands. The war in what was Yugoslavia has created the biggest flood of refugees in Europe since 1945.

The republics of Serbia and Montenegro proclaimed a new Federal Republic of Yugoslavia on April 17, 1992. Serbia helped Bosnian Serbs in the war with Muslims. UN imposed sanction on Yugoslavia. In Sept. 1992, the UN expelled the rump Yugoslavia and asked it to apply afresh for UN membership. Excluded from the General Assembly, it retained access to other bodies.

After NATO air raids in Serb-held Bosnian territory in Aug. '95, Serbian government said it would form a joint team with the Bosnian Serbs to hold peace negotiations.

Autonomous provinces within Serbia; Kosovo (Cap: Pristina; Area: 10887 sq.km. Pop: 1,850,000. Vojvodina (Cap: Novi Sad, Area: 21,506 sq.km; Pop: 2,050,000).

Agricultural products: Maize, grains, sugar beets, wheat, tobacco, livestock, timber.

Industry: Electricity, coal, lignite, iron, steel, cement, motor vehicles, wood products, tourism.

Mission in India: Embassy of Yugoslavia, 3/50 Niti Marg, Chanakyapuri, New Delhi-110 021. Tel: 6873661; Fax: 6885535.

Zaire

(Republic of Zaire) Cap: Kinshasa; Area: 2,344,885 sq km; Pop: 43.9 m.; Lang: French, Kiswahili, Lingala and other African languages; Literacy: 72%; Rel: Christianity, Animism and Islam; Currency: New Zaire \$1= 3221 ; p.c.i: \$ 180. President: Mobutu Sese Seko; PM: Joseph Kengo Wa Dondo.

Originally a Belgian colony (Belgian Congo), Zaire, in west central Africa, became independent on June 30, 1960. Until Oct. 1971, Zaire was known as the Democratic Republic of Congo or Congo (Kinshasa). In 1971, the name of River Congo was changed to River Zaire.

Economic difficulties plagued Zaire in the 1980s and worsened in the 1990s. President Mobutu announced an end to a 20-year ban on multi-party politics in 1990. In 1991 he agreed that the political opposition should form a government.

During 1994, Zaire was inundated with refugees (a million Hutu) from the ethnic bloodshed in Rwanda.

The major assets of Zaire are the Katanga copper mines and the diamond deposits in Kasai. The country is rich in other minerals like cobalt, (60% of world reserves), cadmium, manganese, zinc and uranium. The forests abound in high class wood like mahogany, ebony and teak. Principal agricultural products are coffee, palm oil, rubber, sugarcane, maize, cassava and plantains.

Mission in India: Embassy of the Republic of Zaire, C56 Panchsheel Enclave, New Delhi-110 017. Tel: 6222796; Fax: 6227226.

Zambia

(Republic of Zambia) Cap: Lusaka; Area: 752,620 sq km; Pop: 9.5 m.; Lang: Bantu and English; Literacy: 54%; Rel: Christianity, Islam and Animism; Currency: Kwacha. \$1=820; p.c.i: \$370; President: Frederick Chiluba; PM: Gen Maalimba Masheke.

Zambia, a landlocked republic in south central Africa, takes its name from the River Zambezi, one of its biggest rivers. Originally known as Northern Rhodesia, it is separated from Zimbabwe by the Zambezi river. Kariba Dam, one of the biggest man-made dams in the world, is on the Zambezi river where it makes the border between Zambia and Zimbabwe.

Zambia became independent on Oct. 24, 1964 and it is a republic within the Commonwealth. In the 1980s, decline in copper prices hurt the economy. There was a famine caused by drought. In June 1990 witnessed severe violence caused by food riots. One-party rule came to an end with Oct '91 elections.

Maize, tobacco, millet, cassava, groundnuts, cotton and sugar are produced.

The country is rich in minerals including copper, zinc, cobalt, lead, uranium and manganese. Although copper mining dominates Zambia's economy, now accounting for 80% of the foreign exchange earnings, the country made a major shift to agricultural production as a result of the crippling fluctuations of copper prices in the world market.

Mission in India: High Commission for Zambia, F-8/22 Vasant Vihar, New Delhi. Phone: 687768; Fax: 6877928.

Zimbabwe

(Republic of Zimbabwe) Cap: Harare; Area: 390,272 sq km; Pop: 11.3 m.; Lang: English, Shona and Ndebele; Literacy: 67%; Rel: Trib

iefs and Christianity; Currency: Dollar.(ZWD)
- 8.44; p.c.i: \$ 560; Executive President:
Robert G. Mugabe.

A landlocked country in SC Africa, Zimbabwe
formerly Southern Rhodesia) has Zambia,
Botswana, S. Africa and Mozambique as
neighbours. Achieved independence on April
1980, after a bitter struggle against the
white minority government in power.

Zimbabwe is rich in minerals notably copper,
nickel, gold, asbestos, chrome and coal. The
Great Colliery is the largest coal mine in the
world. Industries include food processing, met-
allurgy, textiles, furniture and engineering. Maize,
groundnuts, cotton and tobacco are the chief
crops, tobacco being the most important one.
Zimbabwe's agricultural performance has been
ranked as the best in black Africa.

Zimbabwe appealed for international aid to



meet the national disaster of drought in 1992.
Widespread hardship was experienced.

Mission in India: High Commission for the
Republic of Zimbabwe, B-8 Anand Niketan, New
Delhi-110 021. Tel: 6885060; Fax: 6886073.

• p.c.i : per capita income

Great Civilizations

Civilization or organized socio-political
civilization first took shape within a nar-
row geographical compass that covered
Egypt in the west, Indus Valley in the east,
Anatolia (Asia Minor) in the north, and Sumeria
(Iraq & Iran) in the south.

Civilization radiated outwards from these
centres, reaching the Mediterranean sea board
and the islands in the west, and China in the
east, around 2000 B.C.

The first cities were very small affairs centered
around temples. The high priest of the temple
was also the chief of the city. Very soon some
temples became more prominent than others
and the high priests of these temples became
the first among city chiefs, or in other words,
kings. Being extremely limited in territorial
area, these embryonic states were little more
than city states. Among the earliest of such
states were those of the Indus Valley, Sumer and
Egypt.

The *Indus Civilization* is the last of the great
civilizations to be discovered. Though a late-
comer to history books, the Indus civilization is
the oldest of the first great civilizations known.
Recent researches at Mehrgarh and other sites
in the Indus Valley indicate that the Indus
civilization had its beginnings between 7000
and 6000 B.C. Carbon-14 analysis has shown
that the later structures at Mehrgarh belong to
the 6th millennium B.C. Earlier structures must
therefore belong to a period prior to 6000 B.C.
It is not known who the builders of the Indus
civilization were. In all probability, they were a

Mediterranean race, allied to the Dravidians of
India. Nor do we know very much of this civil-
ization as the Indus seals still remain
undeciphered. But the artifacts that have been
unearthed indicate a level of civilization no whit
behind the fabled civilizations of Sumeria and
Egypt.

Sumeria was in the lower valley of the
Euphrates and Tigris, in the southern half of
Mesopotamia. We do not know who the
Sumerians were. They were a broadheaded race,
thickset and short in stature with fleshy faces
and big noses prolonging the life of the forehead
without any intervening depression. Their eyes
were widely set apart and slanting. They have
been compared by some to the Turanians of
today and by others to the Dravidians of India.

Sumeria had a hectic history. The original
Sumerians were overwhelmed by a number of
foreign conquerors, through successive centu-
ries - the Akkadians, Babylonians, Assyrians,
Chaldeans etc. But all through these conquests
and turmoil, the old Sumerian civilization re-
mained intact, being supplemented and rein-
forced by the conquering races.

The racial origin of the *Egyptians* is also a
matter of dispute. Some regard them as a con-
quering Asian race acquainted with metallurgy
and armed with superior weapons, who easily
triumphed over the tribes inhabiting the Nile
Valley in neolithic times. The history of Egypt,
unlike that of Sumeria, was more or less smooth.
Except for the invasion of the Asian tribe Hyksos
in 1790 B.C. and their occupation of Egypt till

1573 B.C., Egypt was ruled by a succession of indigenous dynasties, under whom the old Egyptian civilization grew to its full dimensions.

On the whole, the Indus, Sumerian and Egyptian civilizations remain the supreme human achievements of the 4th millennium B.C. Around 2000 B.C. the Phoenicians settled on the Syrian

coast and laid the foundation of a maritime empire in the Mediterranean.

Hittites established a kingdom in Asia Minor which later expanded eastwards and southwards. At Mycenae (Greek mainland) and Crete and adjoining islands, other tribes about whom we know very little, built cities that rivalled those of Sumeria and Egypt in splendour.

Outline of History

The great civilizations of Sumeria, Egypt and the Indus Valley open the long and chequered history of mankind. An outline of that history through the ages, from the early civilizations to the Second World War, is given below in chronological order.

B.C. 6000: Neolithic settlements at Mehrgarh, Baluchistan and in the *Indus Valley*; Sundried brick houses; Domestication of cattle, water buffalo, sheep and goats; Cultivation of wheat and barley; Copper known.

5000: Development of farming in the Indus Valley wheat and barley, fruit trees; jujube and date; cultivation of cotton; pottery and beads; Neolithic settlements in *Sumeria*; domestication of animals; Beginnings of farming; Neolithic settlements in *Egypt*.

4000: Invention of potter's wheel and bow drill in *Indus Valley*; kiln-fired pottery; red painted wares; beads of local stones and turquoise - copper melting. Susa founded in *Sumeria*; White painted pottery in *Egypt* and development of farming.

3500: Growth of pottery in *Indus Valley*; Several varieties of decorated wares; Sumeria develops cuneiform (wedge-shaped) writing; Sumerian temples at Erudu, Ur and Urak; Potter's wheel in use in Sumeria.

3000: Copper alloys in *Indus Valley*; bronze in use; cultivation of grape-vine; First dynasty at Ur in Sumeria; Wheeled vehicles in use; linen produced; King Menes the Fighter unites Upper and Lower Egypt; *Phoenicians* settle on the Syrian coast with centres at Tyre and Sidon; Early Minoan civilization in Crete.

2980: Memphis made the capital of Egypt; Pharaoh god-king.

2870: Beginnings of Trojan culture in Asia Minor.

2850: Traditional beginnings of civilized life in China.

2650: The first pyramid (stepped pyramid) built in Egypt.

2500: Sixth dynasty in Egypt; Collapse of the Old Kingdom; Dominance of the Ur dynasty

over all Sumeria; Sumerian numerical system based on 6 and 12; Lunar calendar; 360 degrees in a circle, 60 minutes in an hour, 60-seconds a minute, etc.; Egypt introduces calendar of 365 days without adjustments; Egyptians discover use of papyrus; Equinoxes and solstices determined in China; Beginnings of astronomical observations in Sumeria, India, Egypt and China; Harappan civilization in Indus Valley (see Part III India).

2200: Traditional beginnings of the Han dynasty in China.

2100: Abraham leaves Ur in Chaldea.

2000: Middle Minoan period in Crete. Mycenae in Greece becomes a centre of civilization; Aryan settlements in India; Vedic civilization takes shape; The composition of the Rig Veda.

1995: Amenemhat founds the 12th dynasty in Egypt.

1800: Hammurabi, the Babylonian Emperor, proclaims a code of law.

1790: Hyksos, an Asian tribe, dispossesses the 13th dynasty and occupies Egypt.

1580: Cretan civilization at its height.

1500: Flowering of Mycenaean civilization in Greece.

1480: Moses leads Israelites out of Egypt.

1400: Mycenaean destroy Knossos palace at Crete. Decay of Cretan civilization.

1380: Amenhotep (Amenophis IV) revolutionises Egyptian religion and proclaims a new religion.

1362: Rebellion in Egypt: Egypt loses her outer possessions.

1345: 19th dynasty in Egypt: Egypt recovers her former power.

1200: Philistines (Phoenicians) from the Mediterranean occupy Palestine. Etruscans, an Asian people, settle in Italy. Homeric siege of Troy by Greeks (?).

1027: Chou dynasty begins in China.

1013: Rise of the Israelites in Palestine. David (1013-973) establishes Israelite hegemony.

1000: Egypt ceases to be a power. Rise of Mauryan civilization in India - composition of the

cs, Ramayana and Mahabharata. Phoenicians develop alphabetical writing.
 50: Phoenicians found the city of Carthage on the northern coast of Africa.
 53: Traditional foundation of the city of Rome.
 521: Draco publishes Athenian laws*.
 510: Ionian (Sanskrit *Yavana*, Persian and Arabic *Yunani*) city states on the west coast of Asia Minor.
 604: A new empire in Mesopotamia with Babylon as capital.
 594: Solon reforms Athenian constitution.
 586: Babylonians capture Jerusalem.
 560: Croesus, reputed to be the richest king of his times, rules Lydia. Lydians issue the earliest known systematic currency.
 538: Cyrus founds the Persian Empire and captures Babylon.
 509: Foundation of the Roman Republic.
 490: Battle of Marathon; Athenians defeat Persians.
 483: Death of Buddha in India.
 480: Battle of Thermopylae - Spartans under Leonidas wiped out by Persians; Battle of Salamis (naval battle) - Athenians under Themistocles rout the Persians.
 479: Battle of Plataea and Mycale - Greek victories over Persia by land and sea respectively; Athenian supremacy in Greece begins; final end of Persian threat; Death of Confucius in China.
 461: Pericles comes to power in Athens.
 431: Outbreak of Peloponnesian War between Athens and Sparta.
 425: Death of Herodotus.
 404: Athenians surrender to Sparta; Beginning of Spartan supremacy in Greece.
 399: Execution of Socrates.
 371: Battle of Leuctra - Thebans defeat Spartans and become the leaders of Greece; Theban hegemony.
 347: Death of Plato.
 338: Battle of Chaeronea; Philip II of Macedon defeats the Greek city states and becomes supreme in Greece.
 336: Alexander becomes the King of Macedon.
 334: Battle of Granicus; Alexander's first victory over the Persians.
 333: Battle of Issus; Alexander's second victory over Darius of Persia.
 332: Alexander captures Tyre and occupies Egypt.
 331: Battle of Arbela (Gaugamela); Alexander finally defeats Persians.
 330: Death of Darius and the end of Persian empire.

A stiff code of conduct with severe punishments for minor breaches — hence the term *draconian*.

326: Battle of Hydaspes; Alexander defeats Porus of India and conquers the Punjab.

323: Death of Alexander at Babylon; Ptolemy I founds dynasty in Egypt; Alexandria (in Egypt) becomes the intellectual centre of the world.

321: Chandragupta Maurya establishes the Mauryan Dynasty in India; Death of Aristotle.

312: Seleucus I founds dynasty in Asia.

275: Battle of Beneventum; Rome finally defeats Pyrrhus and becomes undisputed master of all Italy.

274: Asoka becomes Emperor of India.

264: Beginning of the First Punic War between Rome and Carthage.

241: End of the First Punic War; Sicily becomes the first province of Rome.

221: Shih Huang Tih completes conquest of all Chinese states.

218: Beginning of the Second Punic War; Hannibal, the Carthaginian general attacks Rome.

214: The construction of the Great Wall of China.

213: Burning of Chinese classics.

212: Romans capture Syracuse; Archimedes killed.

202: Eastern Han dynasty in China; Hannibal defeated by the Roman general, Scipio Africanus.

201: End of Second Punic War; Rome dominates western Mediterranean.

196: Rome conquers Macedon and Greek city states.

149: Outbreak of Third Punic War.

146: Romans invade Carthage and make it a Roman province.

124: Establishment of a college in China to train civil servants.

110: China under Emperor Wu Ti expands towards south east.

106: Marius and Sulla become Roman leaders.

60: The formation of the First Triumvirate; Pompey, (Julius) Caesar, Crassus.

58: Caesar begins conquest of Gaul.

55: Caesar's conquest of Britain.

53: Crassus, defeated by Persians, falls into disgrace in Rome.

49: Caesar crosses the Rubicon and challenges Pompey.

48: Battle of Pharsalus; Caesar defeats Pompey.

46: Caesar reforms the calendar, later known as the Julian Calendar.

44: Murder of Caesar.

43: The formation of the Second Triumvirate; Antony, Octavian (Augustus), Lepidus.

42: Battle of Philippi; Antony and Octavian defeat Brutus and his associates.

31: Battle of Actium; Octavian defeats An-

tony and Cleopatra and becomes the Emperor of Rome.

27: Roman Senate confers the title of *Augustus* on Octavian; Octavian becomes *Caesar Augustus*.

4: Birth of Jesus Christ?*

A.D.

A.D. 6: China institutes Civil Service Examination.

14: Augustus dies.

29: Crucifixion of Christ.

64: Great Fire of Rome.

70: Emperor Titus suppresses Jewish revolt and destroys Jerusalem.

79: Vesuvius volcano erupts and destroys the famous Roman towns of Pompeii and Herculaneum.

80: Completion of the Roman Colosseum.

97: Chinese penetrate into Persian Gulf.

117: Roman Empire reaches its greatest extent under Hadrian.

180: Death of Marcus Aurelius. Beginning of the decline of the Roman Empire.

212: Emperor Caracalla gives Roman citizenship to all the free citizens of the empire.

220: Period of Civil War in China begins.

230: Emperor Sujin in Japan organizes a Japanese empire.

251: Goths defeat and kill the Roman emperor Decius.

284: Diocletian becomes emperor of Rome; persecution of Christians reaches its climax.

306: Constantine becomes emperor.

313: Edict of Milan gives tolerance to Christians in the Roman empire.

320: The Gupta dynasty rises in India.

325: The Council of Nicaea, first General Council of the Christian Church.

378: Battle of Adrianople; Goths defeat and kill Eastern Roman Emperor Valens.

395: Final division of the Roman Empire into Eastern and Western empires.

410: Alaric the Goth captures and destroys Rome. This is taken to be the end of the Roman Empire.

415: Visigoths begin conquest of Spain.

429: Vandals begin conquest of North Africa.

452: Attila invades Italy.

455: Rome pillaged by Vandals.

* Dating 4 B.C. as the year of Christ's birth has always been a matter of dispute among chronologists and hence it is given with a question mark. Christian Era commenced on January 1, 754 AUC (ab urbe condita from the foundation of the city of Rome).

Dionysius Exiguus, the Scythian monk who invented AD reckoned the birth of Christ to have occurred in 753 AUC; but Christ was born under Herod the Great according to the Gospels; i.e., at the latest in 750 AUC.

This dating though disputed has continued in use to the present day and, as a result, the Nativity is reckoned to have taken place in or shortly before the year 4 B.C. when Herod died.

476: Romulus Augustulus, the last Western Roman emperor, deposed by Odovakar; end of Western Roman Empire.

481: Clovis becomes the King of Franks; occupies Gaul.

527: Accession of the Eastern Roman emperor Justinian I.

529: Publication of the Civil Code by Justinian I.

538: Justinian builds the famous church Hagia Sophia at Constantinople.

570: Birth of Mohammed.

589: Unification of China under the Sui dynasty.

622: Hejira or flight of Mohammed from Mecca to Medina; Beginning of the Mohammedan era.

632: Death of Mohammed; Accession of Abu Bakr, the first Caliph.

636: Muslims occupy Damascus.

638: Capture of Jerusalem.

718: The greatest Muslim attack on Constantinople fails.

732: Advance in Spain halted by Charles Martel.

750: Beginning of Abbasid Caliphate (replacing Omayyads).

786: Accession of Haroun-al-Rashid in Baghdad.

800: Coronation of Charlemagne as Roman Emperor.

814: Death of Charlemagne and the decline of his empire.

840: Muslims capture Bari and occupy Southern Italy.

843: Treaty of Verdun; Final division of Carolingian Empire founded by Pipin, King of France, in A.D. 751; Beginning of France and Germany as separate states.

862: Rurik founds Viking state in Russia at Novgorod, later at Kiev.

866: Fujiwara period begins in Japan.

868: The first printed book in China.

899: Death of Alfred the Great in England.

900: Ghana in North West Africa at the height of its power.

982: Norsemen discover Greenland.

1000: Leif Ericsson discovers North America.

1016: Canute becomes King of England.

1066: William I, Duke of Normandy, conquers England.

1073: Gregory VII becomes Pope.

1075: Seljuk Turks capture Jerusalem.

1086: Compilation of Domesday Book in England.

1095: Council of Clermont; Pope Urban II preaches First Crusade.

1099: First Crusade under Godfrey of Bouillon takes Jerusalem.

1148: Second Crusade fails to capture Jerusalem.

152: Accession of Emperor Frederick Barbarossa.
 161: Explosives used in warfare in China.
 176: Battle of Legnano; Frederick Barbarossa defeated by the Lombard League; Italian states become autonomous.
 185: Kamakura period in Japan; Epoch of Feudalism in Japan which lasts until 1333.
 189: Third Crusade under Frederick Barbarossa, Philip Augustus of France and Richard Lion Heart of England.
 192: End of the Third Crusade without winning Jerusalem.
 204: Fourth Crusade captures Constantinople.
 206: Jengiz Khan becomes King of the Mongols and overruns Central Asia.
 215: Fourth Lateran Council. Papal authority reaches its zenith; Magna Carta in England.
 260: Kublai Khan rules in China.
 291: The League of Uri; Beginning of the Swiss Confederation; Crusades end.
 309: Papacy moves to Avignon; Beginning of the *Babylonian Captivity*.
 314: Battle of Bannockburn; Robert Bruce victorious and defeats the English army.
 1338: Beginning of the Hundred Years War between England and France.
 1348: Black Death reaches Europe.
 1356: Battle of Poitiers; Black Prince of England defeats the French.
 1360: Peace of Bretigny; Edward III of England gains territories in France.
 1362: English made the official language in England.
 1363: Timur (Tamerlane) begins his career of conquest in Asia.
 1368: Ming dynasty in China.
 1377: Pope returns to Rome; End of *Babylonian Captivity*.
 1381: Peasants' Revolt in England.
 1398: Timur invades North India.
 1415: Battle of Agincourt; Henry V of England gains a decisive victory over France.
 1429: Joan of Arc leads the French army and liberates Orleans.
 1431: Joan of Arc burnt at stake as a witch.
 1453: Turks capture Constantinople and end the Byzantine or the Eastern Roman empire. End of the Hundred Years War.
 1455: First battle of St. Albans; Beginning of the Wars of the Roses in England.
 1469: Marriage of Ferdinand of Aragon with Isabella of Castile and the formation of the modern kingdom of Spain.
 1485: Battle of Bosworth Field. Beginning of the Tudor period in England.
 1488: Bartholomew Diaz rounds Cape of Good Hope.



Vasco da Gama

1492: Christopher Columbus discovers the West Indies.

1497: John Cabot discovers Newfoundland.

1498: Vasco da Gama reaches Calicut by sea.

1499: Amerigo Vespucci charts part of the South American coast.

1500: Portuguese Admiral Pedro Alvares Cabral discovers Brazil.

1517: Martin Luther begins the Reformation; Turks conquer Egypt.

1520: Suleiman the Magnificent becomes Sultan of Turkey; Turkish power at its height.

1521: Cortes conquers Mexico. Turks capture Belgrade.

1526: Battle of Panipat; Babar founds Mogul Empire in India.

1533: Ivan IV (the Terrible) becomes Czar of Russia.

1534: Act of Supremacy; Henry VIII assumes control over English Church.

1542: First Portuguese sailors reach Japan.

1545: Opening of the Council of Trent.

1556: Akbar becomes Mogul Emperor.

1557: Macao becomes a permanent Portuguese port in China.

1558: Elizabeth I becomes Queen of England.

1577: Drake begins voyage round the world returning by 1580.

1582: Pope Gregory XIII introduces (New style) Gregorian Calendar.

1585: Hideyoshi, dictator of Japan, unifies the country.

1588: English defeat the Spanish Armada.

1598: Edict of Nantes; French Protestants given liberty of worship; End of French Wars of Religion.

1600: English East India Company formed.

1602: Dutch East India Company founded.

1603: Union of English and Scottish Crowns; James VI of Scotland becomes James I of Britain.

1611: Publication of the Authorised Version of the English Bible.

1613: Michael Romanov becomes Czar of Russia and establishes the Romanov dynasty.

1620: Pilgrim Fathers settle in New England.

1624: Richelieu becomes Chancellor in France.

1628: Petition of Rights in England.

1636: Japanese forbidden to go abroad.

1641: Japanese exclude all foreigners from

Japan, except small Dutch trading ships.

1642: Outbreak of the English Civil War between Royalists and Cavaliers.

1644: Ching dynasty (Manchu) in China.

1649: Charles I of England executed; Cromwell becomes Protector of England.

1660: Restoration of monarchy in Britain; Charles II founds the Royal Society.

1661: Mazarin, who succeeded Richelieu as the Chancellor of France, dies; Louis XIV takes over the government in person.

1665: Great Plague of London.

1666: Great Fire of London.

1688: Glorious Revolution in England; James II abdicates the British throne.

1689: Bill of Rights in England.

1694: Founding of the Bank of England.

1696: Peter the Great becomes Czar of Russia.

1701: War of Spanish Succession begins.

1721: Robert Walpole becomes the first Prime Minister of England.

1739: Nadir Shah of Persia sacks Delhi.

1740: Frederick the Great becomes King of Prussia; Maria Theresa succeeds to the Austrian throne; Beginning of the War of Austrian Succession.

1751: Clive takes and holds Arcot in India and checks French advance; Chinese conquest of Tibet.

1756: Seven Years War begins.

1757: Clive conquers Bengal.

1760: Battle of Wandiwash; The English defeat the French in India.

1762: Catherine II becomes Czarina in Russia.

1770: James Cook discovers New South Wales.

1776: American Declaration of Independence.

1787: The drafting of the American Constitution.

1789: French Revolution begins; Storming of the Bastille (July 14); George Washington becomes the first President of USA.

1792: France becomes a Republic.

1793: Louis XVI beheaded.

1804: Napoleon Bonaparte becomes French Emperor.

1805: Battle of Trafalgar and Nelson's death.

1807: Napoleon controls all Europe; Slave trade abolished in the British Empire.

1815: Battle of Waterloo, Napoleon sent to St. Helena.

1823: U.S. President announces Monroe Doctrine.

1832: First Reform Bill in England.

1837: Queen Victoria succeeds to the British throne.

1840: Introduction of penny postage in England.

1848: Louis Philippe of France abdicates; Second French Republic proclaimed; Marx and Engels publish the *Communist Manifesto*; Gold discovered in California.

1849: Britain annexes the Punjab.

1851: Submarine telegraph cable between Dover and Calais; Discovery of gold in Australia.

1852: Napoleon III becomes Emperor of France.

1854: Crimean War.

1856: Livingstone completes journey across Africa.

1857: First War of Indian Independence.

1858: British Crown assumes power in India.

1861: Abraham Lincoln becomes President of the United States; American Civil War.

1862: Bismarck becomes the Chancellor of Prussia.

1865: Abolition of Slavery in USA; Assassination of Lincoln.

1867: Dominion of Canada established; Russia sells Alaska to America.

1868: Shogunate abolished in Japan; Meiji period of westernization under imperial leadership begins.

1869: Opening of the Suez Canal.

1870: Promulgation of the Doctrine of Papal Infallibility.

1871: Franco-Prussian War, Defeat of France by Prussia; Trade Unions in Britain legalized.

1886: Britain annexes Upper Burma; Discovery of gold in Transvaal.

1894: Japan declares war on China.

1895: Japan occupies Formosa and Korea.

1899: Boer War begins.

1900: Australian Commonwealth proclaimed.

1902: End of the Boer War.

1904: Russo-Japanese War begins.

1905: Russo-Japanese War ends by the Treaty of Portsmouth; Norway separates from Sweden.

1906: First Parliament in Russia.

1907: New Zealand becomes a Dominion.

1909: Union of South Africa formed.

1911: Chinese Revolution; Amundsen reaches South Pole (Dec. 14).

1912: China becomes a Republic under Sun Yat Sen; The Titanic disaster.

1914: Archduke Francis Ferdinand of Austria assassinated at Sarajevo (June 28); Austria declares war on Serbia (July 28); The beginning of the first World War.

1915: Germans start air attacks and submarine blockade against Britain; Germans sink American ship Lusitania (May 7).

1916: Battle of Verdun (Feb. 21—July 18); France stops German advance; Russian army humbled by Germany (Aug. 25); Britain battles German naval strength (May 31), Lloyd George, Prime-minister, forms war cabinet in Britain.

mans advance on the Eastern front; Vilna (Sept. 18). Rasputin, the Russian monk, assassinated by Prince Felix Yussupov (Dec. 30).
 1917: Russian troops mutiny in Petrograd (March 10); Provisional government formed in Russia — Czar Nicholas II abdicates (March 15), Russia declares war on Germany (April 16), Bolshevik Revolution begins in Russia (Nov. 6), Armistice concluded between the Revolutionary Government in Russia and Germany (Dec. 5).
 1918: Treaty of Brest-Litvsk between Germany and Bolshevik Russia (March 3). The British capture Jerusalem (Dec. 8), Czar, Czarina and children executed at Ekaterinburg. Revolution breaks out in Germany; Emperor William II abdicates; German Republic proclaimed (Nov. 9).
 1919: Peace conference opens in Paris (Jan. 18); Benito Mussolini founds Italian Fascist Party; Jallianwallabag massacre in India (April 13); Treaty of Versailles signed (June 28).
 1920: First meeting of the League of Nations.
 1921: Formation of the Irish Free State.
 1922: Mussolini marches on Rome and the Fascist Party takes over the Government in Italy.
 1923: Turkish Republic proclaimed under Mustafa Kemal Pasha.
 1924: The first Labour Ministry in Britain under Ramsay MacDonald; Greece becomes a Republic; Lenin dies (Jan. 21).
 1927: Col. Lindbergh flies across the Atlantic.
 1929: Wall Street Crash; The beginning of the Great Depression.



Towards Peace: First meeting of the League of Nations

1933: Hitler appointed Chancellor by Hindenburg; German Reichstag set on fire (Feb. 27).

1934: Austrian Chancellor Dollfuss murdered (July 25); Hindenburg dies and Hitler becomes dictator.

1936: Italians occupy Addis Ababa; Civil War breaks out in Spain; King Edward VIII of England abdicates; Duke of York succeeds King Edward as King George VI.

1938: Munich Agreement between Chamberlain (England), Daladier (France), Hitler (Germany) and Mussolini (Italy).

1939: General Franco establishes dictatorship in Spain (Feb.); Germans invade Poland; Germans and Russians partition Poland; Second World War begins (Sept.).

1940: Germany invades Denmark, Norway, Holland, Belgium and Luxembourg; British evacuation from Dunkirk; Germans occupy Paris; Russians occupy Lithuania, Latvia and Estonia; France surrenders to Germany (June).

1941: Germany attacks Russia (June); Japanese attack on Pearl Harbour (Nov. 7); Japanese occupy Malaya, Philippines and Sarawak.

1942: Japanese navy defeated by US fleets off Midway Island (June); Battle of El Alamein (October 23); The Allies rout German forces; The Germans retreat.

1943: Axis Powers — Germany, Italy and Japan—in retreat over all the war zones; Mussolini resigns; Italian Fascist Party dissolved.

1944: Allies enter Rome; liberate France, Belgium, Holland and Bulgaria.

1945: Yalta Conference. Roosevelt, Churchill and Stalin agree that Russia would enter war against Japan (Feb 3-11); Americans invade Okinawa; Japanese Cabinet resigns; President Roosevelt dies (April 12); Mussolini and his mistress shot dead by Italian partisans (April 28); Hitler commits suicide (April 30); German forces surrender to Allied armies (May 8); The UN Charter signed at San Francisco on June 26; Labour Party wins British elections (July 26); Atomic bomb dropped on Hiroshima (Aug. 6); Second atom bomb dropped on Nagasaki (Aug 9); Japan surrenders to USA; The end of the Second World War (Sept 2); Trial of major war criminals opens at Nuremberg (Nov. 20).

Post – Second World War

1946: The first regular session of the UN Assembly held in London (Jan.); Trygve Lie elected the first Secretary General; Formal winding up of the League of Nations; Meeting of the UN General Assembly in New York (Oct. 23); Nuremberg sentences on Nazis carried out; Goering commits suicide.

1947: Pakistan becomes free (Aug 14); India wins freedom (Aug. 15); The partition of Palestine approved by the UN.

1948: Burma becomes a Republic; Gandhiji assassinated (Jan. 30); Ceylon becomes independent; C. Rajagopalachari succeeds Mountbatten as the Governor General of India; Jews proclaim the new State of Israel in Palestine.

1949: General Mao-Tse-Tung proclaims the People's Republic of China; Chinese Nationalist Government sets up headquarters in Formosa; United State of Indonesia comes into being.

1950: The proclamation of the Republic of India (Jan. 26); The Korean War begins; George Bernard Shaw dies aged 94 (Nov. 2).

1951: Libya becomes independent.

1952: King George VI of Great Britain dies and is succeeded by his daughter Elizabeth II; Olympic Games open at Helsinki (July 1).

1953: Stalin dies aged 74 (March 6); Dag Hammarskjöld elected Secretary General of the UN; Hillary and Tensing conquer Everest (March 29); Korean armistice signed.

1954: Formation of the Federation of Rhodesia and Nyasaland; French settlements in India pass under Indian control.

1955: Afro-Asian Conference at Bandung; Albert Einstein dies (April 18).

1956: Sudan becomes an independent Republic; Pakistan proclaims itself an Islamic Republic; France leaves Indo-China; Col. Nasser becomes President of Egypt; Nationalisation of Suez Canal; Russia sends troops to quell revolt in Hungary.

1957: Polish Communist Party under Gomulka comes to power in Poland; Ghana becomes independent; Tunisia becomes a Republic; First Earth satellite (Sputnik I) launched by Russia.

1958: The first American Earth satellite Explorer I launched.

1959: Batista Government in Cuba overthrown by Fidel Castro; Alaska becomes the 49th State of USA; Inauguration of the Fifth French Republic under De Gaulle; the Chinese occupy Tibet; Dalai Lama flees to India;

Bandaranaike, Prime Minister of Ceylon, assassinated; Archbishop Makarios elected President of Cyprus.

1960: Cameroon, Togo, Belgian Congo, Ghana, Cyprus and Somalia become independent Republics. Congo (Brazzaville), Chad, Central African Republic and Malagasy become independent. Olympics opened at Tokyo (Aug. 25); Nigeria becomes independent.

1961: Rwanda and Burundi in Africa become independent; Sierra Leone and S. Cameroon become independent; South Africa becomes a Republic and withdraws from the Commonwealth; Conference of non-aligned nations opens at Belgrade; Syria secedes from the United Arab Republic; Tanganyika becomes independent within the Commonwealth; India annexes Portuguese enclaves of Goa, Daman and Diu.

1962: General Ne Win seizes power in Burma; China begins attack on India's northern frontier (Sept. 19); U Thant elected Secretary General of United Nations (Nov. 30).

1963: China and Pakistan sign frontier agreement; Egypt, Syria and Iraq form Arab Federation; Malaya, Singapore and South Borneo form Malaysian Federation; President John F. Kennedy assassinated in Dallas, Texas (Nov. 22); Barbados becomes independent.

1964: Tanganyika and Zanzibar join to form Tanzania; Jawaharlal Nehru dies (May 27); Pakistan becomes independent; Soviet Premier Khrushchev ousted; Alexei Kosygin becomes Premier; Leonid Brezhnev, Secretary of the Communist Party; Olympics opened at Tokyo (Oct. 1).

1965: Field Marshal Ayub Khan is elected President of Pakistan; Indonesia withdraws from the UN (Jan. 25); Sir Winston Churchill dies (Jan. 24); Dr. Albert Schweitzer dies (Aug. 15); Rhodesia seizes independence; Mobutu takes over in Congo.

1966: Army takes over in Ghana, dethroning Nkrumah; Sukarno (Indonesia) loses power to Army Chief Suharto (Mar. 1).

1967: Nasser blocks gulf of Aquaba, a vital sea outlet; Eastern Nigeria secedes to form Biafra Republic. The Six-day War begins; Israel strikes a pre-dawn blow on UAR, Syria, Jordan and captures Gaza, Sinai and Jericho; Fighting ends in Suez Canal area with a truce of cease-fire.

1968: Martin Luther King assassinated (Apr. 4); Soviet and Warsaw Pact countries invade Czechoslovakia; Olympic Games opened in Mexico City (Oct. 9).

1969: U.S. astronauts Neil Armstrong and Edwin Aldrin set foot on the Moon (July 21). President Ho Chi Minh (79), of North Vietnam, passes away (Sept. 4).

1970: The 30-month-fighting for a separate Biafra collapses. Bertrand Russell (97) dies (Feb.). President Gamal Abdel Nasser (52) dies (Sept.); Charles de Gaulle (79), dies (Nov. 10); Defence Minister Hafez Assad seizes power in Syria (Nov. 14); Soviet Lunokhod 1 lands on the Moon. (Nov. 17); Awami League led by Sheikh Mujibur Rahman gets absolute majority in Pakistan's first general election.

1971: Inauguration of the Aswan Dam in Egypt (Jan. 15); Apollo 14 astronauts Shepard and Mitchell land on the Moon (Feb. 2); Mujibur Rahman declares Bangladesh independent (Mar. 26); Mujibur arrested by the Pakistan army; Russia sends up Salyut I; Soyuz X links with Salyut in space (April 19); Apollo 15 launched (Aug. 8); China admitted to the UN; Taiwan expelled (Oct. 25); United of Arab Emirates formed (Dec. 2); Pakistan attacks India from the west (3); India recognises Bangladesh; Pakistan army in Bangladesh surrenders (16); Indo-Pakistani war ends; 17. Yahya Khan resigns Pakistan presidency, Bhutto becomes President; 20. Dr. Kurt Waldheim appointed UN Secretary General.

1972: January 8. Bhutto releases Mujibur Rahman.

April 21. Pakistan leaves Commonwealth.

August 8. Fourth non-aligned nations meet in Georgetown, 26.. Olympics open at Munich.

November 8: Bloodbath in Olympic village - Arab guerillas kidnap and kill Israeli sportsmen; Nixon re-elected President.

1973: January 1. Britain joins E.C.M.



Surrender: Gen. Ojukwu of Biafra

March 2. Awami League led by Mujibur Rahman wins first election in Bangladesh.

April 8. Pablo Picasso dies.

July 10. Bahamas becomes independent. 19. Afghanistan ends monarchy to become a Republic.

October 6. War breaks out in West Asia between Israel and Egypt and Israel and Syria; 22. Ceasefire in West Asia.

1974: February 11. Libya nationalises American oil companies; 22. Pakistan recognises Bangladesh; 27. Emperor Haile Selassie deposed.

May 18. Pokhran Nuclear Explosion (Peaceful Nuclear Experiment) conducted in Rajasthan.

June 2. Jigme Singye Wangchuk crowned King of Bhutan.

July 15. Cyprus army overthrows President Makarios.

August 9. Nixon resigns presidency; Gerald Ford takes over as the 38th President of USA.

October 11. UN admits Bangladesh, Guinea-Bissau and Grenada as members; Labour wins British elections with a narrow majority; 25. U. Thant, former UN Secretary General, dies in Burma.

1975: January 25. Mujib assumes full powers as President; One-party rule in Bangladesh.

February 11. Margaret Thatcher elected first woman leader of the British Conservative Party; (25) King Faisal of Saudi Arabia assassinated.

April 5. Taiwan's President Chiang Kaishek dies; 30. Saigon surrenders to communists.

May 17. Mrs. Junko Tabei (36) of Japan becomes the first woman to scale Mt. Everest.

June 5. Suez Canal reopened after eight years.

July 6. Mozambique becomes free after nearly 500 years' Portuguese rule.

August 15. Army coup in Bangladesh; Mujibur Rahman killed; new regime under Khondokar Mushtaq Ahmed.

September 1. Israel signs agreement with Egypt; 16. Special-UN session adopts plan for new world economic order.

October 9. Nobel Peace Prize for the father of Soviet hydrogen bomb, Dr. Sakharov; (22) 'Venus-9' softlands on planet Venus while module becomes a satellite; Arnold Toynbee dies.

November 20. Angola becomes free from Portuguese rule; Spanish dictator Franco dies; (22) Juan Carlos becomes King of Spain.

December 3. Laos becomes a Republic.

1976: March 24. Military chiefs take over in Argentina, arrest Mr. Peron and dissolve Parliament.

June 11. Indira Gandhi and Brezhnev sign Moscow declaration of friendship and co-operation; 24. Vietnam unified.

July 4. At Entebbe Air-borne Israeli commandos destroy Ugandan planes, kill 100 Ugandans and free Air France Air-bus passengers from

hijackers; 17. Montreal Olympics opens; 16 African nations boycott; 20. US Probe lands on Mars; 23. Soares heads first democratic government in Portugal.

August 16. Non-aligned summit opens at Colombo; 28. Second World Hindi Conference in Mauritius; Khan Abdul Ghaffar Khan released in Pakistan.

September 9. Mao Tse-Tung dies.

October 9. Hua Kuo-feng succeeds Mao; 12. Mao's widow Mrs. Chiang Ching and three top radicals arrested.

1977: January 20. Jimmy Carter sworn in President.

February 17. Mohammed Daud sworn in President of Afghanistan.

March 8. Bhutto's Pakistan People's Party wins landslide victory in polls.

April 21. Maj. Gen. Ziaur Rahman sworn in Bangladesh President.

June 16. Leonid Brezhnev elected Soviet President.

July 5. Coup in Pakistan; General Zia-ul-Haq takes over; Bhutto deposed and arrested; 22. Sirimavo's ruling Freedom Party routed in polls; Jayawardene becomes Sri Lanka Premier.

August 3. Bhutto released, Cyprus President Archbishop Makarios dies.

September 1. Ian Smith wins election in Rhodesia.

November 19. President Sadat of Egypt makes historic visit to Israel.

November 19. Arab front against Egypt formed.

December 4. Charlie Chaplin dies.

1978: February 4. Jayawardene sworn in as

the first President of Sri Lanka.

April 27. Military junta seizes power in Afghanistan.

June 4. Zia-ur-Rahman wins Bangladesh Presidential election; 25. Argentina wins World Cup Football beating Holland, 3-1; 26. Coup in South Yemen.

July 10. Army officers seize power in Mauritania.

August 22. President Jomo Kenyatta of Kenya dies.

September 16. Zia-ul-Haq sworn in as President of Pakistan.

October 6. Daniel Arap Moi elected President of Kenya; 9. Asian Games begin in Bangkok.

1979: January 1. International Year of the Child opens; 16. Shah leaves Iran.

February 1. Ayatollah Khomeini returns to Iran after 14 years of exile.

April 1. Iran proclaimed Islamic Republic; Bhutto executed.

May 1. Greenland gets home rule; 4. Margaret Thatcher becomes the first woman Prime Minister of Britain.

June 18. Salt II agreement signed by Carter and Brezhnev in Vienna.

July 11. Skylab plunges down off the western Australian coast.

August 27. Mountbatten killed in an explosion off Ireland.

September 3. Sixth Non-Aligned Conference opens in Havana; 21. Emperor Bokassa of Central African Empire overthrown in a coup.

November 1. Army seizes power in Bolivia; 21. Muslim extremists seize Kaaba Mosque in Mecca.

The Eighties

1980: February 19. Trudeau returns to power in Canada;

March 31. Jesse Owens, American Olympic Champion, dies.

April 16. Jean Paul-Sartre, French philosopher and writer dies; Free Zimbabwe born; 22. U.S. attempt to free hostages in Iran fails.

May 4. Marshal Tito of Yugoslavia dies; 18. China successfully tests ICBM.

June 12. Japanese P.M. Ohira dies; Suzuki new P.M..

July 19. Moscow Olympics begin.

September 10. Libya and Syria announce merger.

October 14. Emergency proclaimed in Sri Lanka; 23. Kosygin resigns as Soviet Premier.

November 5. Ronald Reagan elected U.S.

President; 20. Trial of Gang of Four begins in Beijing; 25. Coup in Upper Volta.

December 19. Kosygin, former Soviet Premier, dies.

1981: January 22. Fifty-two American hostages fly out of Teheran after 444 days in captivity; Ronald Reagan takes charge as 40th President of the United States.

February 10. Jozef Pinkowski resigns as Polish P.M.

March 24. Political parties in Pakistan dissolved; 31. Reagan shot at.

April 1. Ordinary People by Robert Redford wins Oscar for the best film; 12. Space Shuttle Columbia, with two astronauts blasts off.

May 10. Francois Mitterrand elected President; 13. Pope John Paul shot at in V

30. Zia-ur-Rahman, Bangladesh President assassinated.

June 4. Sri Lanka proclaims state of emergency.

September 2. Belize becomes independent; TGV, the world's fastest train makes inaugural trip from Paris to Lyons.

October 6. Egyptian President Anwar Sadat assassinated; 14. Hosni Mubarak sworn in as Egypt's fourth President;

November 1. Antigua and Barbuda become independent.

December 1. Javier Perez de Cuellar, elected Secretary General to succeed Dr. Kurt Waldheim; 13. Army takes over in Poland; Solidarity leaders put in jail; 31. Ft. Lt. Jerry Rawlings returns to power in Ghana.

1982: January 9. Egypt and Israel agree on withdrawal of Israeli forces from Sinai. February 22. South-South Conference opens in New Delhi;

March 1. Russia's Venus-13 lands on Venus; Britain and the Vatican resume full diplomatic relations after four centuries.

April 2. Lt. Gen. H.M. Ershad seizes power in Bangladesh; Argentina occupies Falkland Isles; 10,000 dead in the Chichonal volcano eruption in Mexico; 23. Dr. Mahathir Mohammed wins Malaysian elections; 25. Egypt officially backs Sinai peninsula.

May 9. U.K. Forces attack Falklands capital; A manned Soviet spacecraft docks with Salyut-7.

June 15. Argentina surrenders to Britain in Falklands.

August 18. Soviet Union launches a woman to space for rendezvous with Salyut 7.

September 15. Lebanon's President-elect Shihab Gemayel (34) assassinated; 18. Massacre in the Palestinian refugee camps of Sabilla and Sabra, in W. Beirut.

October 1. Helmut Kohl elected Chancellor of W. Germany; 9. Solidarity dissolved in Poland.

November 10. Halley's comet sighted for the first time since it last zipped by the Earth in 1910; Soviet President Leonid Brezhnev (75) dies; 12. Yuri Andropov succeeds Brezhnev; 10. World premiere of Sir Richard Attenborough's Gandhi in New Delhi.

1983: March 5. Bob Hawke becomes Australia's Prime Minister; 7. Seventh Non-Aligned summit opens in New Delhi. 23. Barney Rokeach, world's first and only recipient of a permanent artificial heart dies.

June 9. Three South African freedom fighters hanged in Pretoria; 10. Prime Minister Margaret Thatcher returns to power for another five-year term.

August 21. Philippines opposition leader



Maiden trip: France's high-speed TGV train

Benigno S. Aquino Jr. shot dead.

September 19. South Korean Boeing 747, with 269 persons aboard, shot down by Soviets into the Sea of Japan; St. Kitts and Nevis become the world's newest nation.

October 3. Lech Walesa awarded the 1983 Nobel Peace Prize; 19. Prof. Subramanyam Chandrasekhar, shares 1983 Nobel Prize for Physics with fellow American Prof. William Fowler.

November 15. The Turkish controlled area of Cyprus declares unilateral independence.

December 11. Gen. Hussain Ershad proclaims himself President of Bangladesh; 28. U.S. notifies withdrawal from UNESCO.

1984: February 10. Soviet President Yuri Andropov dies; 13. Konstantin Chernenko becomes new Soviet Communist Party Chief; 21. Mikhail Sholokov, dies.

April 12. Astronauts on board Space Shuttle Challenger creates history by retrieving disabled satellite Solar Max and repairing it.

May 9. Phu Dorjei conquers Mount Everest without oxygen.

July 14. Lange's Labour Party sweeps to landslide victory in New Zealand.

September 5. Brian Mulroney wins general election in Canada; Prime Minister P.W. Botha elected President of S. Africa; 30. North and South Koreans open borders for the first time since 45.

October 31. Indira Gandhi assassinated; Rajiv Gandhi sworn in as P.M.

November 7. Regan re-elected US President. December 19. 2,500 killed in Bhopal gas tragedy; China and Britain sign agreement to transfer Hong Kong to China in 1997.

1985: 15. Brazil elects Tancredo Neves as its first civilian President in 21 years.

March 11. Soviet President Konstantin Chernenko dies. Mikhail Gorbachev elected General Secretary of the Communist Party. 23. Gen. Zia-ul-Haq sworn in as President and

Mohammad Khan Junejo as Prime Minister of Pakistan; 26. *Amadeus* wins Oscar award for best picture.

April 6. Sudanese president Jaafar Nimeiri overthrown; Armed forces chief Abdel Rahman Swareddahab assumes power.

June 1. Alan Garcia elected President of Peru; 2. Andreas Papandreu re-elected Prime Minister of Greece;

July 2. Andrei Gromyko elected President of the Soviet Union; 10. The Rainbow Warrior, flagship of the ecological group Greenpeace, sinks after explosion, in Auckland; 27. Worldwide *Live Aid* concert, raises millions of dollars for famine relief in Africa.

August 13. Writer Shiva Naipaul dies; 27. Maj. Gen. Ibrahim Babangida becomes President in Nigeria.

September 1. The wreck of the Titanic, which sank in 1912 located.

October 11. Film maker Orrson Welles dies; 18. South Africa hangs black poet Benjamin Moloise, 28, for the murder of a policeman.

November 6. Jose Biro, inventor of the ball-point pen dies; Ali Hassan Mwinyi succeeds Julius Nyerere as the President of Tanzania; 9. Garri Kasparov beats fellow Soviet player Anatoly Karpov 13-11 to become the youngest-ever world chess champion; 19. Reagan and Gorbachev meet in Geneva—the first super-power summit in six years.

1986: January 7. U.S. imposes economic sanctions against Libya; 17. U.S. Solar system probe *Voyager 2* discovers six new moons of the planet Uranus; 19. Britain and France decide

to build a twin rail tunnel across the Channel; 29. American Space Shuttle, Challenger plodes after launching; all the seven on board killed; Yoweri Museveni takes over as President of Uganda.

February 7. Embattled, President-for-life J. Claude Duvalier (34), flees Haiti; 16. Dr. Mario Soares, elected first civilian President of Portugal in 60 years; Soviet Union rehabilitates Nobel prize-winning novelist, Boris Pasternak; 20. Soviet Union launches Mir (Peace) Space Station. 25. In Philippines, Corazon Aquino, 53, sworn President; Swedish Prime Minister, Olof Palme, 59, shot dead.

March 6. Mikhail Gorbachev re-elected General Secretary of the Soviet Communist Party for five years; 16. Swiss voters in a national referendum, overwhelmingly reject their country's entry into the UN.

April 29. Nuclear leak in Chernobyl Power Station spreads atomic radiation over Europe.

May 2. Ann Bancroft becomes the first woman to reach N. Pole; 4. Gro Harlem Brundtland becomes Norway's first woman PM; 19. Benazir Bhutto elected co-chairman of Pakistan People's Party.

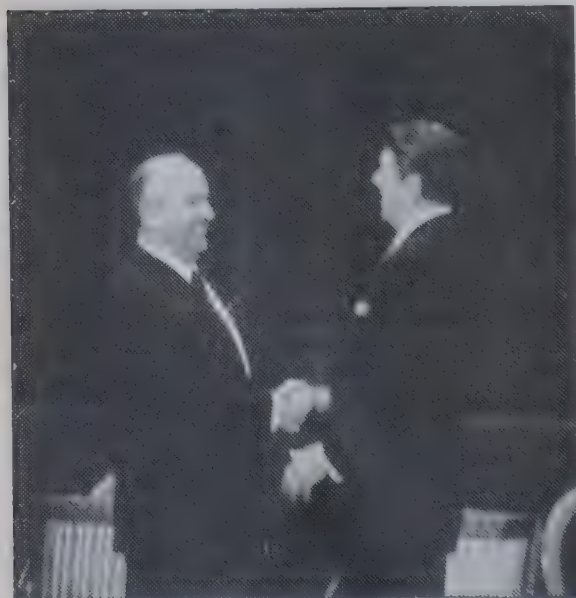
June 9. Kurt Waldheim elected President of Austria; 29. Argentina wins the 13th World soccer championship defeating West Germany (3-2) at Mexico City.

August 4. Dr. Mahathir Mohammed re-elected to power in Malaysia;

September 1. Eighth Summit of Non-Aligned Movement begins in Harare, Zimbabwe; 8. Archbishop Desmond Tutu enthroned as leader of the 2-million-strong Anglican Church in Southern Africa; 20. 10th Asian Games opens in Seoul.

October 11. Reagan and Gorbachev meet in Reykjavik; 12. 1800 die in El Salvador quake; 14. Rafael Angel Calderon Fournier re-elected Secretary General of the United Nations; 13. Survivor of Auschwitz camp Elie Wiesel wins Nobel Peace Prize; 14. Soviet Union starts pulling out its troops from Afghanistan; Martina Navratilova registers her 1000th win in international tennis; 16. Lt. Gen. H. M. Ershad, 56, voted 10th President of Bangladesh; Prince Souphanouvong steps down as President of Laos.

November 3. Joaquim Chissano elected President of Mozambique, to succeed Samora Machel; 17. SAARC Summit at Bangalore decides to set up permanent secretariat at Kathmandu; 18. India elected new Chairman; 19. The Soviet Parliament allows private enterprise on a small scale; 25. President Reagan reveals that profits from a shipment of arms to Iran had been illegally siphoned off to finance the guerrillas of the Contras in Nicaragua and fires National Security Adviser John Poindexter; 26. Saudi-Bahrain causeway opened.



Summit of Hope: Gorbachev and Reagan

Glasnost and all that

1987 January 1. Campus demonstrations in Bangladesh for greater democracy; 16 Abdul Ahsan of Bangladesh takes over as the first Secretary-General of SAARC.

February 2. Thriller-writer Alistair Maclean, dies; Hollywood celebrates its 100th birthday; 21. Pakistan President Gen. Zia visits India. March 5. President Reagan admits that Iran's deal was a mistake.

April 17. Swedish State Radio reports that the Swedes won Sweden's biggest export order from India by bribing Indian politicians and officials. May 15. Col. Rabuka becomes Fiji's President. 18. Swedish economist Gunnar Myrdal, dies.

June 1. Lebanese PM Rashid Karami killed; 12. Britain, Margaret Thatcher wins a third term. July 21. UN Security Council unanimously passes a resolution demanding an end to the seven-year-old Iran-Iraq war; 29. India and Sri Lanka sign peace accord in a bid to end the 50-year-old ethnic trouble.

August 1. 200 Iranians die in Mecca when they clash with Saudi police.

September 1. In Sri Lanka LTTE takes over civil administration in Tamil areas. 29. Fiji made a Republic.

October 17. The Commonwealth ousts Fiji from membership. 20. Stock-prices crash in United States and investors lose an estimated 100 billion dollars.

November 2. Third SAARC Summit opens in Kathmandu. 7. Tunisian President Habib Bourba is deposed and PM Zine El Abidine Ben Ali takes over as President. 18. In China Vice Premier Li Peng is nominated PM.

December 1. Dr. Najibullah elected President of Afghanistan. 3. Cosmonaut Yuri Romanenko, Commander of the Orbiting Platform *Mir* breaks the 300-day space endurance record, so held by a Soviet. 5. Former Governor-General, Ratu Sir Penaia Ganilau appointed first President of the new Fiji Republic; 8. Reagan and Gorbachev sign treaty to scrap intermediate nuclear weapons. 20. Garry Kasparov retains world chess championship.

1988 March 11. Suharto once again sworn in as President of Indonesia. 12. In a Kathmandu stadium 70 football fans killed in a stampede.

April 7. WHO observes April 7 as No Tobacco (smoking) Day. 12. The Last Emperor, directed by Bernardo Bertolucci, wins nine Oscars; 14. Geneva accord for Afghan peace signed. 22. Syria and PLO agree to normalise

relations after a five-year-long break.

May 9. French President Francois Mitterand elected President a second term; 15. Soviet troops begin withdrawal from Afghanistan; 29. Pakistan President, Gen. Zia-ul-Haq, dissolves National Assembly, Gorbachev and Reagan, open five-day Kremlin Summit.

July 27. UN-mediated talks to end Iran-Iraq conflict begins in New York; 31. Former Maj. Gen. Chatichai Choonhavan sworn in as the first elected PM of Thailand since 1976.

August 2. UN Secretary General Javier Perez de Cuellar gets 1987 Jawaharlal Nehru Award for International Understanding. 15. Paraguayan President, Gen. Alfredo Stroessner, starts his 8th presidential term. 17. Pakistan President, Gen. Zia-ul-Haq (64) killed in an air crash; Emergency declared in Pakistan; Senate Chairman, Ghulam Ishaq Khan, takes over as President. 30. South African troops complete pull out from Angola.

September 6. Lee Kuan Yew becomes Singapore's PM for the seventh successive term; 11. Steffi Graf, 19, of West Germany, completes Grand Slam; by winning women's singles final of U.S. Open. 17. 24th Olympic Games opens at Seoul, with a record participation of 160 countries; 21. Gen. Saw Maung takes over as Burmese P.M. 24. Ben Johnson of Canada becomes the fastest human by beating American Carl Lewis in Seoul Olympics. 26. Maldivian President, Maumoom Abdul Gayoom, wins third five-year term in office. 27. Ben Johnson stripped of his 100 m gold medal for taking drugs, the medal awarded to Carl Lewis (US). 29. 1988 Nobel Peace Prize for U.N. Peace-Keeping Forces. 30. Soviet President Andrei Gromyko and four other top figures dropped from Kremlin leadership.

October 1. Gorbachev emerges as the most powerful leader in Soviet Union, combining the offices of General Secretary of the Communist Party and President of the country; West German Steffi Graf achieves historic Golden Slam, by winning gold medal in the Olympic women's tennis championship; 2. Seoul Olympiad ends. Soviet Union sweeps the overall championship with a total of 132 medals; 10. Angola, Cuba, South Africa and U.S. agree that Cuba should withdraw its troops from Angola in 24 to 30 months. 13. Egyptian writer, Naguib Mahfouz wins 1988 Nobel Prize for literature.

November 3. A group of at least 150 sea-borne invaders storm Maldivian Capital, Male and Indian troops helped quell the invasion; 5.

Col. Kasdi Merbah appointed PM of Algeria; 8. Salman Rushdie's novel, "The Satanic Verses", banned in India and many other nations, awarded the 1988 Whitbread Prize for fiction; 9. George Bush, elected President of the U.S.; 12. Richard Hadlee (37) of New Zealand becomes the highest wicket-taker in Test Cricket- his 374th victim in Bangalore Test; 15. Independent Palestine State declared by PLO Chairman, Yasser Arafat; 22. Canadian PM, Brian Mulroney, re-elected.

December 1. Emergency lifted, Ms. Benazir Bhutto nominated PM of Pakistan; (4) Carlos

Andres Perez wins Venezuela's Presidential elections; 12. Acting President, Ghulam Ishtiaq Khan, elected President of Pakistan; 13. Agreement envisaging independence of Namibia signed in Angola in Brazzaville, Congo; 14. Peace in Angola signed in Brazzaville, Congo; 15. Angola, Cuba and South Africa; 14. Yasser Arafat addresses the special session of U.N. General Assembly, in Geneva; 15. U.S. lifts a 13-year ban on direct contact with PLO; 20. Ranasinghe Premadasa, elected President of Sri Lanka; 22. Pan Am Boeing 747 crashes into Scottish town Lockerbie killing 268; 29. SA Summit begins in Islamabad.

Changes in East Europe

1989 January 2. R. Premadasa sworn in as President of Sri Lanka; 7. Japanese Emperor Hirohito dies at 87. Akihito proclaimed new Emperor; 20. George Bush takes oath as the 41st President of U.S. 26. Spanish painter Salvador Dali dies.

February 13. Paraguayan President Gen. Alfred Stroessner deposed in a coup; Gen. Andres Rodriguez new President. 14. Last of Soviet troops pull out from Afghanistan.

March 3. D.B. Wijetunge appointed Sri Lankan PM. 30. Rain Man wins four Oscars, including Best Actor Award for Dustin Hoffman.

April 1. U.N. Peace-Keeping Force arrives in Windhoek to prepare for independence of Namibia; 2. Yasser Arafat appointed President of the self-declared State of Palestine. 12. Japanese PM Noboru Takeshita admits that he received over 150 million yen from Recruit & Co. 15. More than 100 killed in soccer match stampede at Hillsborough stadium in Sheffield (England).

May 4. Chinese students in Beijing demonstrate for democratic rights. 19. Martial law in Beijing. 25. Gorbachev elected Soviet Union's first Executive President.

June 3. Head of Iran's Islamic Republic, Ayatollah Ruhollah Khomeini (86), dies. 4. In Beijing, soldiers storm Tiananmen Square and crush the month-old students' pro-democracy campaign killing hundreds. 5. Iranian President Ali Khamenei named acting Leader of the Islamic Republic. 10. 17-year old Arantxa Sanchez of Spain defeats World No. 1 Steffi Graf to win French Open. 11. Michael Chang from U.S. beat Swede Stefan Edberg in French Open to become the youngest to win a Grand Slam title at 17 years and three and a half months; 23. Ceasefire goes into effect in Angola ending a 14-year old civil war. 24. China replaces Zhao Ziyang with

Jiang Zemin as Party General Secretary; Sudanese armed forces overthrow civilian government of PM, Sadek el-Mahdi and seize power.

July 2. Andrei Gromyko (79), dies; Hungary's Janos Kadar dies. 11. British Laurence Olivier dies. 13. Amirthalingam, Secretary-General of TULF, gunned down by militants; 14. France celebrates 200th anniversary of the French Revolution. 20. Gen. Wojciech Jaruzelski elected President of Poland; 21. Ali Akbar Hashemi Rafsanjani elected Iranian President.

August 1. Australian Cricket team renews Ashes for the first time on English soil since 1934. 8. Geoffrey Palmer new PM. of New Zealand. 9. Toshiki Kaifu becomes new Japanese PM. P.W. Botha quits, F.W. De Klerk sworn in as acting South African PM. 24. Tadeusz Mazowiecki is new Polish PM, ending 45 years of Communist rule.

September 1. Ninth Non-aligned Summit opens at Belgrade. 14. F.W. De Klerk elected South African President; Sam Nujoma, President of SWAPO, returns to Namibia after 15 years in exile. 15. Pakistan re-admitted into Commonwealth. 26. Vietnamese troops pull out of Cambodia. 28. Former Philippines President Ferdinand Marcos dies.

October 5. Dalai Lama wins 1989 Nobel Peace Prize; 18. East German Communist Party leader Eric Honecker quits. 23. Hungary becomes democratic republic.

November 7. Communist-dominated German Government resigns. 9. Deng Xiaoping resigns the Chairmanship of the Central Advisory Commission, his last official post; Jiang Zemin replaces him. 10. Berlin Wall, the symbol of the division between East and West, falls open in various places. 14. SWAPO gets victory in Namibian elections.

December 2. U.S. Bush and Gorbachev, meet their first Summit in a Soviet luxury liner off Leningrad. 6. East Germany appoints Manfred Krug, its first non-communist Head of State. 17. In Czechoslovakia, the first Government without a communist majority in 41 years, formed. 19. Fernando Collor de Mello becomes first democratically elected President of

Brazil in 29 years. 20. US. forces invade Panama. 22. Romanian President Nicolae Ceausescu overthrown. 25. Panama's Gen. Noriega, seeks refuge in the Vatican Mission. 26. The ousted Romanian President, Nicolae Ceausescu, and his wife Elena, executed; Ion Iliescu named new President. 29. Vaclav Havel elected Czechoslovakia's first non-communist President since 1948.

Reunification of Germany

1990 January 4. Panama's Gen. Noriega in U.S. custody to stand trial; 17. USSR announces withdrawal of 80,000 troops from Czechoslovakia; 26. Swiss authorities freeze Bofors communist accounts; 29. Erich Honecker arrested. February 2. Thirty-year-old ban on the African National Congress (ANC) lifted; 4. New Zealand's Richard Hadlee becomes the first in Test Cricket history to take 400 wickets; 7. Soviet Communist Party relinquishes its 72-year-old monopoly over the state; 11. S. African leader Nelson Mandela freed after 28 years in prison; 16. Sam Nujoma elected Namibia's first president; 26. President Daniel Ortega loses in Nicaraguan Presidential Polls; 27. Toshiki Kaiju elected Japan's PM; Soviet Parliament votes for Presidential form of government.

March 12. Lithuania proclaims itself independent after a half-century of Soviet rule; 14. François Mitterrand becomes the first French president of Haiti; 15. Gorbachev takes oath as the first Soviet Executive President; 19. East Germans vote for unification of both Germanys; 20. Namibia attains freedom at midnight; 21. Last batch of Indian peace keeping force leaves Sri Lanka; Driving Miss Daisy wins Oscars; 28. Sri Lankan PM D.B. Wijetunge resigns, Cabinet dissolved.

April 9. Non-communists win Hungary elections; 11. In Greece, conservative New Democracy Party forms Government, Constantinos Karamanlis new PM; 16. In Nepal, King Birendra sacks PM Man Mohan Singh and dissolves National Panchayat, K.P. Bhattarai the new PM; 22. Military coup in Nigeria; 23. Namibia admitted to the UN as 160th member; 27. Violeta Chamorro sworn in as President of Nicaragua.

May 14. King Birendra dissolves the controversial constitution recommendation commission set up by him; 22. North & South Yemen merge to become Republic of Yemen; 23. Fiji orders the Indian Embassy to close down; Nepal bans panchayat; 29. Yeltsin elected president of Russian Federation.

June 2. Bush-Gorbachev summit, agree on

ending cold war; 21. 40,000 people die in a major earthquake in Iran.

July 1. West and East Germany abolish their common border. West German currency becomes East German Currency also; In a stampede in the tunnel near Mecca nearly 1500 pilgrims die; 13. Fiji drops controversial move to impose a grower/miller contract that would have substantially reduced the income of sugar-cane farmers. Fiji adopts racist constitution barring Indians from power; 26. Maldivian President Abdul Gayoom gives amnesty to former President Ibrahim Nazir, who is in exile in Singapore since 1978. Soviet Byelorussia declares independence.

August 2. In an overnight attack, Iraq captures Kuwait. Kuwait's Emir flees to Saudi Arabia; 6. Pakistan President Ghulam Ishaq Khan dismisses 20-month-old Benazir Bhutto Government and appoints combined opposition candidate Ghulam Mustafa Jatoi as caretaker PM and announces fresh election on October 24. 8. The new Pakistan Government imposes restrictions on former PM Benazir Bhutto and her relatives on travel abroad; 9. Iraq announces annexation of Kuwait to Iraq and orders foreign countries to shift their embassies to the capital of Iraq — Baghdad. Security Council declares merger null and void; 15. Iraq unilaterally decides to withdraw troops from Iranian areas as also to release Iranian Prisoners of War; 25. United Nations Security Council authorises members to use force in enforcing UN embargo for invading Kuwait; 28. Iraq makes Kuwait its 19th province.

September 9. Bush and Gorbachev meet at Helsinki to find a solution to the Gulf problem; 12. West and East Germany and second World War allies sign treaty at Moscow to restore sovereignty to a United Germany; 18. 100th Olympics in 1996 to be held at Atlanta; 22. Eleventh Asiad opens in Beijing; 24. Soviet Parliament votes for free market economy.

October 1. Soviet Union and South Korea establish diplomatic relations; 3. Federal Re-

public of Germany (FRG) (West Germany) and German Democratic Republic (East Germany) unite to become a single country under the name of FRG. Gorbachev wins Nobel peace prize.

November 6. Nawas Sharif, sworn in as Pakistan's 11th Prime Minister; 9. King Birendra of Nepal promulgates new constitution replacing already deferred *partyless panchayat system*; the U.S. sends 2 lakhs more troops to Gulf; 12. Akihito ascends the world's oldest hereditary monarchy — in Japan; 19. NATO and Warsaw pact member countries sign treaty to cut military wares in Europe ending the cold war formally; 21. Fifth SAARC meeting began in Male. President Abdul Ghayoon elected chairman; 22. Margaret Thatcher announces deci-

sion to step down; 22. John Major, Chancellor of the Exchequer in Thatcher cabinet takes over Prime Minister. Emergency clamped Bangladesh; 29. Iraq rejects UN ultimatum to withdraw from Kuwait before Jan. 15

December 3. In the first poll for a democratic united German Parliament, Chancellor Helmut Kohl, with coalition partners, get an overwhelming majority; 6. Bangladesh President Gen. H.M. Ershad resigns. 10. Mr. Lech Walicki elected President of Poland. 12. Gen. Ershad and his wife kept under detention in Dhaka; African National Congress President Mr. Oliver Tambo returns to South Africa after 30 years in exile in Zambia; 20. Soviet Foreign Minister Shevardnadze resigns; 24. Armed Forces overthrow Surinam President Ramsewak Shankar.

Break up of Soviet Union

1991: January 9. Geneva talks to end Gulf war fail; Soviet troops move to the eight rebel republics; 13.. Soviet tanks enter Lithuania; ; Soviet tanks launch attack on Latvia; 17. War erupts in the Gulf; Iraq bombed; 'Blue chip' war reported 'live' for 24-hours by the US television network CNN. 18. Iraq launches missile attack on Israel; King Olav of Norway, world's oldest King, dies at the age of 87; 20. US attacks Iraqi infantry; emergency in the Suez Canal zone; 21. Iraq attacks Saudi, moves its war planes to Iran; 23. Iraqi missile attack, five killed in Israel. 25. Allied forces recapture the Kuwaiti island of Khura; 26. Jesuits celebrate the 450th anniversary of their founding and the 5th birth centenary of their founder Ignatius Loyola.

February 1. One hundred Iraqi tanks destroyed; Archbishop of Canterbury Dr. Robert Runcie, retires. 3. Missile attack on Tel Aviv and Riyadh. 5. Allied forces attack Iraqi republican guards. The last of the 1.25 lakh Indians in Kuwait manage to return to India. 6. Iraqi Scud missiles attack Israeli nuclear facility north of Tel Aviv. 7. Iraq continues the scorched earth policy in Kuwait. 8. Iraq breaks diplomatic relations with France. 11. US marines move to Kuwaiti border from Saudi Arabia, Operation Desert Storm. 13. Missiles from American bombers pierce through Iraqi underground shelter killing many hundreds including women and children. 22. US gives ultimatum to Iraq to withdraw; Quincy Jones wins 7 Grammy awards; 23. Iraq rejects US ultimatum; land war begins; 24. Allied parachute forces capture Kuwait city; Iraq sets fire to hundreds of Kuwaiti oil wells; 25. Tank battle rages in Kuwait; 20000 Iraqi

soldiers taken prisoners; US soldiers enter Kuwait; Warsaw Pact disbanded; 26. Kuwait fully liberated; Sheikh Jabar, regains control of his estate; 27. Arabia, Bangladesh goes to poll; quasi-military. 28. Ceasefire in the Gulf, Benazir Bhutto's Pakistan People's Party and Khaleda Zia's Bangladesh Nationalist Party emerges winners.

March 2. Sri Lankan Defence Dy. Minister Ranjan Wijeratne dies in a motorcade explosion; 3. UN Security Council imposes conditions for Gulf ceasefire; 19. Mrs. Khaleda Zia appointed the first woman Prime Minister of Bangladesh. 26. 'Dances with Wolves' corners 7 Oscars.

April 1. Albania holds its first free election; 50 years; Georgians vote for independence from the Soviet Union; 4. British author George Orwell, 86, dies. 8. Communists gain a third majority in Albania's first free election. 9. Soviet withdrawal from Poland begins. 10. UN Security Council votes to establish a 300-member U.N. Iraq-Kuwait Observation Mission. The Gulf war formally ends after 86 days. 11. Giulio Andreotti forms 50th postwar Italian Government; Gorbachev becomes the first Soviet leader to visit Japan. 21. US army enters Northern Iraq to set up relief camps for Kurdish refugees.

May 1. In Bangladesh 1 lakh feared of cyclonic storm. 3. Communist leader Enver Hoxha re-elected President of Albania. 12. Goes to polls — the first multi-party election in 32 years. 14. Nepalese PM Krishna Bhattarai resigns following a stunning election. Winnie Mandela gets a 6 year sentence for kidnapping and being an accessory to murder. 15. Edith Cressen elected the first woman

ster of France. 17. Nepali Congress gets absolute majority in Parliament. 21. Rajiv Gandhi assassinated. 26. Girija Prasad Koirala new PM in Nepal. 28. Rebel forces capture Ethiopian capital Addis Ababa. 29. Mengistu flees to Eritrea.

June 1. Eritreans secede from Ethiopia; 4. Hundreds killed in an ammunition dump explosion in Addis Ababa; 12. General Ershad, Bangladesh's former President, sentenced to 10 years' rigorous imprisonment; 13. Yeltsin wins absolute majority in Russian Presidential elections; 25. Slovenia declares independence; Croatia break away.

July 1. Warsaw Pact of 6 communist nations dissolved; 10. Yeltsin sworn in as Russian President; 11. All the 264 Nigerian Muslim pilgrims die when their chartered jetliner crashes near Jeddah; 12. Soviet Parliament approves Gorbachev's union treaty; 15. Fijian armed forces Chief Rabuka resigns to become Dy. PM; 28. Slovenia declares war on Yugoslavia; 30. Bush and Gorbachev sign the historic START in Moscow.

August 5. Soichiro Honda, 84, founder of Japan's Honda Motor Company, dies. 6. Bangladesh switches over to the parliamentary form of government; Shapone Bakhtiar, the Shah's '79 last PM assassinated in France; 10. China decides to sign T. 19. Attempted coup to oust Gorbachev collapses; Estonia declares independence. 23. Gorbachev and Yeltsin agree to share powers; Lithuania joins Communist Party. 25. Byelorussia declares independence. 27. Moldavia declares independence; 28. All KGB leaders sacked; 30. Former Supreme Soviet President Anatoly Lukyanov arrested for his role in the coup attempt. 31. Kirghistan and Uzbekistan, declare independence.

September 2. US recognizes Baltic states. 5. The Soviets' full Parliament votes to dismantle the highly centralised Soviet Union and make it a loose confederation of Republics; 8. Accra declaration of Non-Aligned Movement demands expansion of the 15-member Security Council; 10. Macedonia declares independence from Yugoslavia; 12. Group of Seven pledges economic support to Soviet Union; 23. Armenia declares itself independent of Moscow. 25. Klaus Barbie, 77, known as the 'butcher of Lyons' dies in a French prison. 26. Security Council announces arms embargo against Yugoslavia. 27. President Bush announces sweeping reductions in US tactical nuclear weapons and asked the Soviets to respond. 29. Zairean President Mobutu and opposition agree to set up an interim government following several days of unrest.

October 1. Haiti President Aristide flies into exile after army intervention; India takes over the Presidency of Security Council with the Ambassador G.R. Gharekhan in the chair; 2. Twelve former Soviet Republics agree to form an economic community of sovereign states; 3. Nadine Gordimer, a white South African, awarded Nobel Prize for

Literature; 6. Gorbachev announces sweeping cuts in the Soviet nuclear arsenal in response to President Bush's initiative; One year moratorium on nuclear tests; 8. Bangladesh Parliament speaker, Abdul Biswas chosen President of the nation; 14. Myanmar's Opposition leader, San Suu Kyi, awarded the Nobel Peace Prize; 20. Turkey's Motherland Party loses power after 8 years' rule in a general election; 27. Leading English poet George Granville Barker (78) dies..

November 1. Russian Parliament grants more powers to Yeltsin to implement radical reforms; Firefighters parade the streets of Kuwait as last of the 640 oil blazes is put out; 2. Frederick Chiluba, 47, leader of the Movement for Multi-Party Democracy, sworn in as President of Zambia; 4. Imelda Marcos, 62, returns to Philippines after spending 6 years in exile; 5. The body of British newspaper tycoon Robert Maxwell picked out from the Atlantic; Kiichi Miyazawa, 72, takes over as the new Prime Minister of Japan; 16. A 35-year old Indian Dr. Ashok Kumar elected to the British House of Commons; Libyan agents indicted for Pan Am bombing at Lockerbie, Scotland, killing 170 people; 18. British hostage Terry Waite and US College Professor Thomas Sutherland freed in Lebanon; 19. Shevarnadze recalled as Minister for Foreign Relations; 20. Cambodia's ruling party and government restores Prince Sihanuk as head of state. 22. Egyptian Deputy Prime Minister, Dr. Boutros Ghali elected new UN Secretary-General; 26. The US hands over its largest overseas airbase to the Philippines.

December 9. Leaders of Russia, Ukraine and Byelorussia sign an agreement to form a Commonwealth of independent States; The European Community agrees in Maastricht in the Netherlands to establish a common central bank and to introduce a single currency by 1999; 11. European Community heads of government sign a treaty on political union; The Chinese Premier Li Peng, arrives in New Delhi for a six day visit, the first since the 1962 war. 13. Prime Ministers Chung Wan Shik of S. Korea and Yon Hong Muk of N. Korea sign a historic agreement on reconciliation and non-aggression; 15. Film maestro Satyajit Ray awarded Special Oscar for his "life time achievement."; 18. Yeltsin sets deadline to proclaim the death of the USSR; Australian Prime Minister Bob Hawke's 8-year reign ends. 21. Formal end to the Soviet Union. 11 republics sign commonwealth protocol at Alma-Ata, capital of Kazakhstan. The seven SAARC nations meeting in Colombo agree to liberalise trade. 25. Supreme Soviet dissolved; Gorbachev steps down.

UN Peace Efforts

1992: January 1. Boutros Boutros Ghali of Egypt assumes charge as UN Secretary General. 14. Gorbachev goes to work as a private citizen as the Chairman of the Fund for Socio-Political Research in Moscow. 17. Japanese PM Kiichi Miyazawa apologizes to S. Korea for war past. 18. Commonwealth of Independent States votes for single armed forces. 24. China establishes diplomatic relation with Israel. 29. India and Israel decide to establish full diplomatic relations.

February 1. Bush and Yeltsin declare end of enmity in a meeting in Washington. 3. A special court in Bangladesh sentences former President H.M. Ershad to 3-year jail for amassing wealth. 9. Pakistan bans JKLf march. 10. Pakistan seals off POK to prevent JKLf marching into India; Algeria declares a 12-month state of emergency and bans Islamic Salvation Front; Alex Haley (70) author of 'The Roots' dies in Seattle. 20. Yitzhak Rabin elected leader of Israel's opposition Labour Party in place of Shimon Peres. 28. India and the UK sign treaty against terrorism; Security Council establishes the largest ever UN peace keeping operation to help Cambodia.

March 3. Gorbachev Foundation—The International Foundation for Socio-Economic and Political Studies—opened in Moscow. 9. China signs the nuclear proliferation treaty; Former Israeli PM, Menachem Begin (78) dies in Tel Aviv; 12. Ukraine halts transfer of N-weapons to Russia; Mauritius becomes a republic. 14. Earthquake in Turkey: 1000 feared killed; Koreas sign accord to set up a joint nuclear commission for mutual inspection of nuclear facilities; 'Pravda' suspends publication; 16. Yeltsin signs decree to form Russian armed forces. 20. The Security Council votes unanimously to establish a UN Protection Force (UNPROFOR) for civil war-torn Yugoslavia. 24. Socialist Party routed in the French regional elections; South Korean ruling Democratic Liberal Party fails to win simple majority in the general election. 31. 'Silence of the Lambs' wins five Oscars.

April 2. Pierre Beregovoy takes over as the French PM. 6. The European Community agrees to lift oil embargo against South Africa; Science writer Isaac Asimov (72) dies. 8. 'Pravda' resumes publication. 10. The Conservative Party led by Mr. John Major voted back to power for the fourth term in the United Kingdom. 13. Mr. Neil Kinnock resigns as the leader of Britain's Labour Party; Nelson Mandela announces separation from his wife Winnie after 34 years of

marriage. 15. The UN mandated sanctions against Libya go into effect; Afghan President Dr. Najibulla goes into hiding as rebels seize country's biggest air-force base at Baghram. Coalition takes over in Kabul; Dr. Najibulla takes refuge in the UN office. 17. Russia decide have two names—Russia and The Russian Federation. 26. G-7 approves a multi-million package for Russia and other members of CIS. 27. Russia and other republics join IMF World Bank. 28. Belgrade proclaims a new Yugoslavia of only two republics—Serbia and Montenegro;

May 1. Racial riot over Rodney King issue. Fertility doctor Cecil B. Jacobson sentenced five years in prison for lying to patients while using his own sperm to impregnate them. Miss Namibia Michelle McLean crowned Miss Universe in Thailand; Miss India, Madhu Sapre becomes second runner-up. 13. Suzy Wins the American Human Rights award. 14. Trio of US astronauts from the shuttle Endeavour rescues a 4000-kg satellite from space, equips it with a new rocket to be sent back to space. 18. The President R. Venkatarama reaches Beijing. 24. Thai PM Suchinda Kraprasitwong bows out following massive anti-government protests. 26. Bangladesh PM Begum Khaleda Zia arrives in India on an official visit.

June 1. The Netherlands legalises prostitution; Russia joins IMF. 2. Danish voters reject the Maastricht treaty on political and economic union for the European Community. 3. Earth Summit-UN Conference on Environment and Development (UNCED) begins in Rio de Janeiro, Brazil. 8. Gorbachev elected head of International Green Cross—an organisation to fight damage to environment. 12. Indian PM V. Narasimha Rao moots Planet Fund plan at Earth Summit in Rio de Janeiro. 13. Agreement on forests: major victory for the Third World. 17. U.S., Russia sign arms pact to reduce ICBMs; Fidel Ramos elected President of the Philippines. 19. The UN-sponsored conference on disarmament chooses the Hague as the site for a new agency to monitor an international treaty to ban chemical weapons. 23. Narasimha Rao holds talk with Miyazawa.

July 1. Ghana honours its first President Kwame Nkrumah, reinterring his remains with full military honours in Accra; Ali Kafi takes office as the new President of Algeria. 2. Communist candidates win 70 out of 76 legislative seats in elections in Mongolia. 4. Italy gets

vernment led by Giuliano Amato. 8. G-7 summit in Munich pledges \$ 24 b to former Soviet states, supports Earth Summit decisions at Rio. 9. Seychelles' voters give socialist President Albert Rene an overwhelming victory in the island's first multi-party poll in 16 years. 31. Leonard Cheshire, 74, the World War II hero who set up a global network of houses for the disabled, dies.

August 1. Erich Honecker, 79, returns to unified Germany. 23. Lebanese in the north and south cast their votes in the first general election in 20 years; 24. Israel proposes interim Palestinian self-rule; China establishes full diplomatic relations with South Korea; 30. Myanmar re-joined to Non-Aligned Movement; Belgrade retains seat; AFRICA Fund (Action for Resisting Invasion, Colonialism and Apartheid) closed.

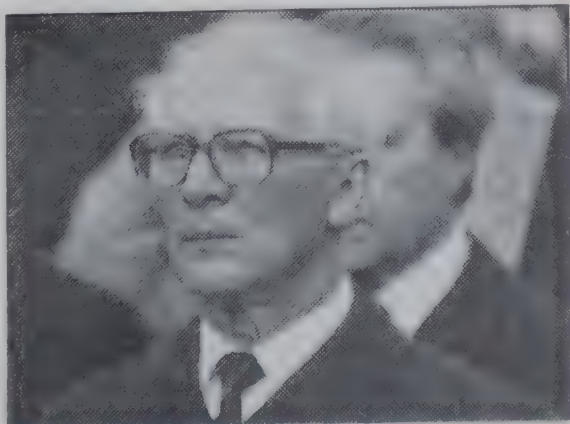
September 1. The 10th Summit of the Non-Aligned Movement begins in Jakarta. 6. The Jakarta Declaration of NAM demands restructuring of the United Nations. 8. Pro-Iranian Muslim fundamentalists and their Syrian-backed allies swept to a landslide victory in Lebanon's first general election in 20 years. 12. Film star Anthony Perkins, 60, of 'Psycho' fame, dies of heart attack. 13. The leader of Peru's largest Marxist guerrilla movement 'Shining Path', Abimael Guzman Aeyboco, arrested after 12 years of imprisonment. 14. Mr. Chuan Leekapai becomes the first Thai PM. 18. Ecuador quits OPEC. 20. The French vote in favour of Maastricht Treaty on European unity with a narrow margin of 51.5%. 21. The UN General Assembly expels Yugoslavia comprising Serbia and Montenegro and asks it to apply afresh for membership. 29. Brazil's lower House of Congress votes to impeach President Fernando Collor de Mello on corruption charges; Angolans go to the first free elections in 16 years. 30. The US hands over the Subic Bay naval-base to the Philippines.

October 1. The North Korean President Kim Jong Il hands over power to his son Kim Jong Un.

3. More than 250 people die as an El Al jumbo jet crashes into two apartment blocks in Amsterdam. 6. Opposition wins majority in Kuwait's National Assembly polls. 7. The UN Security Council decides to establish a 'war crimes commission' to check the charges of human rights violations in the former Yugoslavia. 8. Dr. Cheddi Jagan stages a comeback after 28 years when he is elected President of Guyana; Former West German Chancellor Willy Brandt, 78, dies. 11. Edward Shevardnadze elected Georgia's new leader. 16. Nobel Peace Prize goes to Rigoberta Menchu, 33, an Indian rights activist from Guatemala. 20. Petra Kelly, 44, one of the founders of the German environmental Greens Movement, and her associate Gert Bastian found dead in their

room in Bonn. 23. Japanese emperor Akihito and empress Michiko arrive in Beijing for the first-ever visit by a Japanese head of state to China. 25. Gunfights rage in Tajikistan capital as forces loyal to ousted President Rakhmon Nabiyev claim power. 31. The Roman Catholic Church admits after 360 years that Galileo Galilei was right when he said that the earth was round;

November 4. Bill Clinton of the Democratic Party elected 42nd President of the United States. 7. Alexander Dubcek, 70, leader of the 1968 'Prague Spring' Liberation Movement in Czechoslovakia, dies. 8. Japanese ship 'Akatsuki Maru' carrying 1.7 tonnes of highly radio-active plutonium sail for home from the French port of Cherbourg amidst opposition by Green Peace and other environmentalists. 9. London rolls out the red carpet for Yeltsin; Berlin gives its highest award to Gorbachev, Reagan and Kohl by making them its honorary citizens. 13. Bid to assassinate Peruvian President Alberto Fujimori fails. 21. In Brussels, the European Community and the US settle their long-running disputes over subsidised food exports; G-15 summit at the Senegalese capital, Dakar; India: next Chairman. 25. A bill dividing Czech federation formally approved by the Czech parliament. 27. The British Queen begins paying income tax. December 1. 5. The UN decides to send military force to secure safe delivery of food and medicines in Somalia; Albania becomes a Muslim State. 9. Operation Restore Hope—UN forces begin peace-keeping efforts in Somalia; Charles and Diana divorce after 11 years of marriage; Pro-Europe Minister Adolf Ogi elected President of Switzerland; US marines storm Mogadishu. 12. Eighteen-year old Ms Julia Kurotchinika becomes the first Russian to be crowned as Miss World in a contest in Sun City, South Africa. 13. Britain's Princess Anne, 42, marries Royal Navy Commander Tim Lawrence (37); Quake



The return: Erich Honecker

hits east Indonesian island of Flores: 1600 killed. 14. The Russian Congress of Deputies confirms Viktor Chernomyrdin as PM; Quake toll in Indonesia rises to 2500. 16. Malaysia introduces new immigration rules; US partially lifts the three-decade old trade embargo on Vietnam. 17. Israel expels 415 Palestinians suspected of ' Hamas' movement for the killing of 5 Israeli soldiers. 19. Kim Young Sin 65,

elected 7th President of South Korea. 20. Taiwan's first direct-elections since 1949, the ruling Kuomin-tang (KMT) party's share of parliamentary seats reduced to 96 out of 162. 23. The hard-line nationalist leader Slobodan Milosevic re-elected President of Serbia. 24. Kenyans go to the polls to choose a president and a National Assembly in the first multiparty elections in 26 years.

Palestine baptised

1993 January 1. European Community's single market opens; The new Czech and Slovak republics come into being; Kenya's first multiparty elections in 26 years. 3. In Moscow, Bush and Yeltsin sign the START II to cut their nuclear weapons by two-thirds by 2003. Australia's Allan Border scores 10,000 runs in Sydney test cricket against West Indies. 4. Daniel Arap Moi, 68, sworn in as Kenyan President. 5. Japanese ship 'Akatsuki Maru' carrying one tonne of highly toxic plutonium from France reaches Japan after 58-day non-stop journey amidst hue and cry by environmentalists; Super tanker Braer carrying 89,000 tonnes of crude spills oil near the Scottish island of Shetland as it runs aground. 6. Rudolf Nureyev, 54, the most celebrated ballet dancer of his generation dies in Paris of AIDS. 12. Jonas Savimbi flees Southern Angola; UNITA stronghold falls. 13. Allied forces launch bomb attack on Iraq; Bosnian Serbs accept the Owen-Vance peace plan presented in Geneva. 15. Danish PM Poul Schulter resigns on account of 'Tamilgate scandal'. 20. William Jefferson Clinton sworn in as the 42nd President of the United States; Hollywood star Audrey Hepburn, 63, dies. 21. Social Democrats led by Paul Nyrup Rasmussen returns to power in Denmark after a decade. 26. Vaclav Havel elected first President of Czech republic; IBM reports year-end net loss of \$ 4.97 b, the biggest annual loss in corporate history.

February 4. Russian cosmonauts place a giant solar mirror in outer space that illuminate night/dark areas across seven European countries. 6. Zaire's President Mobutu Sese Zeko dismisses Interim Premier Etienne Tshisekedi. 7. Arthur Ashe, 49, former Wimbledon champion, dies of AIDS in New York. 10. Netherlands becomes the first country to officially sanction mercy killing for the incurably ill. 12. Kapil Dev crosses 400 wickets and 5000 runs in test cricket. 15. Right-wing Greek Cypriot leader Glafcos Clerides beats the incumbent George Vassiliou in the presidential election in Cyprus;

Egypt decides to widen the Suez canal by 300m to accommodate fully loaded tankers carry up to 1,70,000 tonnes. 17. Wang Dan, the wanted student leader of China's 1989 democracy movement released from prison. 18. Fourteen Nobel Peace Prize winners join to condemn Myanmar's military junta and demands freedom for Aung San Suu Kyi and others. 21. Russia's 130-tonne Mir space station celebrates its seventh anniversary in orbit. 24. Canadian PM Brian Mulroney quits after 8 years in office. 26. Allan Border beats Gavaskar's record of highest test runs (10,122). 27. Car bomb blast causes 6-storey hole in New York's World Trade Centre.

March 3. Dr. Albert Sabin, 86, developer of oral polio vaccine dies in Washington. 5. Johnson banned for life for using steroids. 7. Afghan leaders sign peace accord in Islamabad; Rabbani to remain head of state while Hekmatyar to become PM. 12. N. Korea pulls out of NPT. 13. The worst winter storm of the century lashes the east coast of the US killing more than 100 people. 15. Israeli PM Yitzhak Rabin offers gradual withdrawal from Golan Heights. 20. President Yeltsin declares emergency in Russia. 27. Communist party general secretary Jiang Zemin, 66, elected the fifth President of China. 28. Yeltsin survives an impeachment attempt. Chinese PM Li Peng, 64, gets a second term for five years. 30. Clint Eastwood's 'Unforgotten' gets the Oscars for the Best Picture and Best Director. 31. Brandon Lee, son of the martial arts legend Bruce Lee, dies in a shooting accident while acting in a movie.

April 3. US-Russia summit opens in Vancouver. 4. Former PM Michael Rocard replaces another former Premier Laurent Fabius as head of France's Socialist Party following its devastating 1993 parliamentary elections. 7. The UN Security Council votes to admit the former Yugoslav republic of Macedonia to its fold in spite of Greek objection. 10. The Seventh SAARC summit opens in Dhaka; South African Com-

ty leader Chris Hani, 50, assassinated. Dhaka summit of SAARC adopts the South Asian Preferential Trade Agreement (SAPTA). G-7 meeting in Tokyo pledges more than \$1 billion aid to Russia; Mystery writer Leslie Charteris, dies in London. 18. In Pakistan President Ishaq Khan sacks PM Nawaz Sharif and dissolves Assembly. Balakh Sher Mazari appointed Acting PM. 23. Sri Lanka's former National-Security Minister Lalith Athulathmudali assassinated. 24. Oliver Tambo, 75, leader of the African National Congress, dies. 28. Zambian soccer team killed in plane crash.

May 1. Sri Lankan President Ranasinghe Premadasa, 69, killed by a suicide—bomber; PM B. Wijetunge takes over as acting President; Monica Seles knifed in a match in Hamburg. 7. D. Wijetunge, 71, sworn in as the third executive president of Sri Lanka; Ranil Wickremasinghe appointed PM. 14. US Defence Secretary Les Brown announces the death of the Star Wars system or the Strategic Defence Initiative (SDI) launched by President Reagan with the collapse of the Soviet Union. 16. Bosnian Serbs vote against the Vance-Owen peace plan that would divide Bosnia Herzegovina into 10 autonomous provinces. 18. Danes approve the Maastricht treaty in their second referendum by 56.8% yes-vote. 20. The Venezuelan Supreme Court orders the trial of President Carlos Andres Perez on embezzlement charges; cabinet resigns. 25. Kazakhstan offers Baikonur facilities to India while receiving Indian PM in Alma-Ata. 26. Pak Supreme Court quashes Ishaq Khan's order dismissing Nawaz Sharif; the government and parliament restored. 27. Nawaz Sharif wins vote of confidence in Pakistan; German Parliament passes curbs to deny entrance to refugees from East Europe and Third World. 28. Eritrea and Monaco join the UN as 182nd and 183rd members; Polish PM Hanna Suchocka resigns after losing a non-confidence motion by one vote; Cambodia's first democratic elections.

June 1. Yugoslav President Dobrica Cosic ousted in no-confidence vote. 5. US signs the UN-sponsored convention on bio-diversity already endorsed by 163 developing and industrialised countries; Sihanouk seeks royalists' support to form a coalition government in Cambodia. 6. Twenty-eight Pakistan peace keeping soldiers killed in Somalia. Former Bangladesh President Ershad sentenced to seven years in jail for corruption and abuse of power. 9. Japan's Crown Prince Naruhito (33) weds former career diplomat Masako Owada (29). Peter Sutherland of Ireland appointed Director General of GATT. 12. North Korea suspends effecting its pullout from the NPT. 13. Twenty Somalians including women and children die when Pakistan's UN peace keepers open fire at demonstrators in

Mogadishu; Iran's President Ali Akbar Rafsanjani elected for a second term. 14. The ruling conservative party elects Kim Campbell, 46, to be the 19th PM of Canada; Tansu Ciller, 47, elected first woman PM of Turkey. 17. Mujahideen leader Gulbuddin Hekmatyar sworn in as Afghanistan's first PM since the guerillas took power more than a year ago. 18. No trust motion against Japanese PM Kiichi Miyazawa passed; Mashood K.O. Abiola claims victory in Nigeria's first civilian Presidential elections since 1979. 20. Nobel prize winning writer William Golding, 81, dies in England. 23. Nigerian Military government annuls the Presidential poll. 25. The Khmer Rouge guerilla group accepts advisory role in the new Cambodian government. 26. US imposes sanction on Russian firms for rocket engine sale to India.

July 1. Haiti's military leader Gen. Paul Cedres accepts a UN plan to revive democracy and return ousted President Aristide to power; Cambodia's 27-member interim ministry sworn in ending the 14-year reign of the Vietnamese-installed Phnom Penh administration. 7. The world's largest trade entities—the US, Japan, Canada and the European Community—agree on tariff cuts at the G-7 summit in Tokyo. 15. Major wins battle against Thatcher when her move to force referendum on Maastricht treaty defeated. 18. Ishaq Khan and Nawaz Sharif resign. Wassim Sajjad and Moin Ahmed Khureshi sworn in as the caretaker President and PM of Pakistan. 20. British parliament ratifies the Indo-British extradition treaty. 22. Japanese PM Kiichi Miyazawa resigns as president of the Liberal Democratic Party. 23. Major gets confidence vote after defeat on the social chapter of the Maastricht treaty. 30. Terming evidence insufficient, Jerusalem Supreme Court acquits the Ukrainian John Demjanjuk accused of being 'Ivan the Terrible' who operated gas chambers that killed 8,90,000 Jews at the Treblinka death camp.

August 15. Nearly 400 Palestinian deportees



Peace is born

stranded in S. Lebanon agree to an Israeli offer to take them back in stages. 22. Algeria's former PM Kasdi Merbah assassinated by suspected Islamic militants. 26. Nigeria's President Gen. Ibrahim Babangida retires. 28. World Parliament of Religions opens in Chicago. 29. Bosnian Serbs accept Geneva Peace Plan; Ong Teng Cheoy becomes Singapore's first directly elected President; Israel and the PLO finalise agreement on limited autonomy for Palestinians in the Gaza Strip and the West Bank town of Jericho; Ernest Shonekan, takes over as head of interim government in Nigeria. 30. World's most modern mosque — the second largest in the world after Mecca's — opened in Casablanca, Morocco.

September 1. Russian President Yeltsin suspends his political rivals Vice President Alexander Rutskoi and first Dy. PM Vladimir Shumeiko on corruption charges. 3. Russian Parliament suspends Yeltsin's decree, suspending Vice President Rutskoi. 7. Six former Soviet Republics—Russia, Armenia, Beloras, Kazakhstan, Uzbekistan and Tadjikistan—sign agreement to accept Rouble as common currency. 9. The body of former Philippines President Marcos brought back from Hawai to his hometown of Batac. 13. Israel and the PLO sign peace agreement outlining a plan for Palestinian self-rule in the occupied territories in Washington. 14. US embargo against Vietnam lifted partially; China releases top dissident Wei Jingsheng after 14 and a half years in prison. 15. Cambodia's elected Assembly turns the country into a kingdom; UN General Assembly elects 8 Judges for a UN war crimes court to try these accused of atrocities in Yugoslavia. 17. UN peace prize for Rabin, Peres and Arafat. 19. Cambodian law makers endorse a new constitution paving way for Prince Norodom Sihanouk to be King. 22. Communist-rooted Democratic Left Alliance wins general elections in Poland; Army backs Yeltsin, Court rejects dissolution of Parliament; UN Security Council decides to establish UNOMIL — United Nations Observer Mission in Liberia; Jan Antonio Samaranch reelected President of IOC. 23. IOC selects Sydney to host Olympics 2000. 24. Prince Sihanouk signs a new constitution that restores him as King of Cambodia; Imelda Marcos awarded 18-year jail term for corruption. 28. Rebels kill Abkhaz PM Zhiuli Sharatava.

October 6. Russia's Constitutional Court Chairman Valery Zorkin resigns following accusations of partisanship against Yeltsin; Angola's rebel UNITA movement announces acceptance of 1992 election results that sent Jose Eduardo Dos Santos back to power. 7. In Pakistan general election Benazir Bhutto's People's Party emerges as the single largest party in a hung parliament; African-American novelist Tony Morrison gets Nobel Prize for literature. 12. Andreas

Papandreou's Socialist Party returns to power after four years in Greece. 14. UN reimposes sanctions against Haiti. 19. Benazir Bhutto becomes the PM of Pakistan for the second time. 21. The Commonwealth Heads of Government Meeting opens in Limassol, Cyprus. 23. Georgia joins the CIS—Commonwealth of Independent States. 26. Jean Chretien's Liberal Party wipes out Campbell's Progressive Conservatives in Canadian election. 27. Booker Prize to Irish writer Roddy Doyle's novel 'Paddy Clarke Ha Ha Ha'. 31. Oscar winning Italian film director Federico Fellini, 77, dies.

November 1. Maastricht Treaty on European union comes into effect. 4. Twenty out of 26 parties in South Africa agree on power sharing after the first multi-racial elections in April. 5. France, Germany and Belgium inaugurate the Eurocorps, a new military unit as the nucleus of a future European army and as a supplement to NATO. 10. Nigerian High Court declares the military appointed government of Ernest Shonekan illegal. 13. Farooq Ahmed Leghari, 53, elected President of Pakistan. 16. Puerto Ricans reject merger with the U.S. 17. South Africa's 21 political parties adopt a new constitution transforming the country into a multi-party and multi-racial democracy; Gen. Sani Abacha takes over command in Nigeria; Civilian President Ernest Shonekan ousted. 25. Egyptian PM Atef Sedki escapes bid on life; British novelist Anthony Burgess, 76, dies in London. 26. Nigerian Justice names new cabinet. 27. Miss Jamaica Lisa Harcourt, 18, crowned Miss World.

December 2. Colombia's billionaire cocaine lord Pablo Escobar, 44, killed in a gun battle with the government forces. 5. The crew of U.S. Space Shuttle Endeavour retrieves the disabled million dollar Hubble Space Telescope for a day repair programme. 6. Pop music and rock and roll legend Frank Zappa, 52, dies in Los Angeles. 8. "Endeavor" crew successfully repairs the Hubble telescope. 12. Moderate coalition wins Russia's first multiparty parliamentary election since 1917 October Revolution; Eduard Frei, candidate of the governing party, wins a landslide victory in Chile's Presidential election. 13. Yeltsin wins referendum for a new constitution. 15. Delegates from 117 Countries approve a GATT treaty after 7 years of negotiations; Major and Irish PM John Albert Reynolds agree on a landmark declaration to pursue a Republican and Protestant gunmen to end years of violence in Northern Ireland. 21. New Constitution comes into effect in Russia. 23. South African Parliament approve a new constitution giving blacks and whites equal rights. 24. Yeltsin elected head of CIS. 25. The Rev. Norman Vincent Peale, 95, who preached the power of positive thinking, dies in the US.

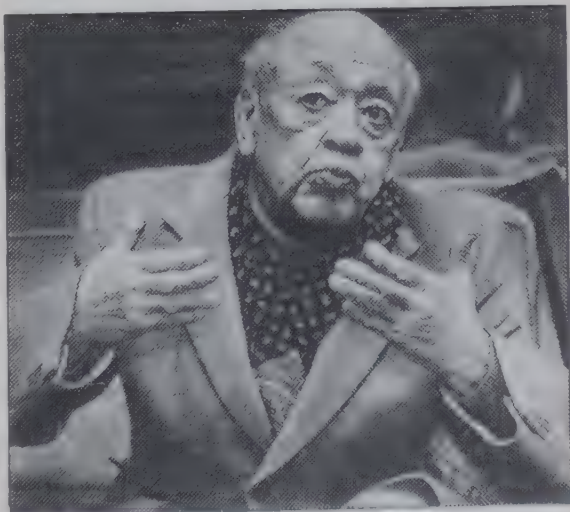
1994 in a nutshell

1994 January 1. A new giant trading bloc—European Economic Area—linking EU and A, emerges; Rebellion by armed peasants in northern Mexico costs nearly 100 lives. 5. Rebellion in Southern Mexico quelled; Former Georgian President Zviaol Gamsa Khurdia, 54, commits suicide; Yeltsin decrees to dismantle structure of KGB and sack 50% staff. 14. Russia and United States formally agree not to let nuclear weapons on each other and sign a partite treaty with Ukraine to eliminate the world's third largest nuclear arsenal. 17. Earthquake kills 30 in Los Angeles. 21. Britain, Germany, Italy and Spain sign an agreement to build a \$ 50 m combat plane Eurofighter; Hafeez Assad, eldest son of President Hafeez Assad of Syria killed in a road accident. 22. Steven Spielberg wins the eluding recognition when he is given the 51st Golden Globe award for directing Schindler's List. 25. Pop super star Michael Jackson reaches an out of court settlement worth at least \$ 10m in a sex abuse case. February 2. Ecuador's ambassador to the UN, the Ayala Lasso nominated as the first High Commissioner for Human Rights. 3. US Space Shuttle Discovery blasted off from Cape Canaveral carrying five American astronauts and a Russian cosmonaut—the first joint effort in 19 years. 4. US lifts trade embargo on Vietnam after 19 years; US decides to keep the nuclear sanctions against Pakistan alive by retaining the Pressler Amendment on foreign aid; Russia signs friendship treaty with Georgia. 6. Pakistan executes public hanging. 9. Israel and the PLO sign a partial agreement in Cairo on details of Palestinian self-rule and Israeli withdrawal from Gaza and Jericho. 14. A US Congressman and a UN official allowed to meet Burmese dissident Aung San Suu Kei for the first time since her home arrest in 1989. 16. Quake in Sumatra kills 134, injures 450; Greece suspends diplomatic ties with Macedonia as the latter refuses to change its name which is the same as that of Greek's northern Province. 21. A senior CIA official, Richard Hazen Amesr and his wife held for spying for Russia for nearly a decade. 25. Fifty Arabs massacred in a mosque in Hebron in the West Bank, Jewish extremist Baruch Goldstein arrested for the crime. 26. PLO recalls its negotiators following Hebron massacre; Maslatskov and Rutskoi of Russia freed from prison.

March 3. China re-arrests top dissidents including Wei Jingsheng. 4. US reinstates Super

301 intended against Japan; UNHCR decries terrorist acts—victory for Indian stand. 5. China frees dissident leader Wei Jing Sheng in a hurry after 24 hours in custody. 16. Norway follows Finland, Sweden and Austria in settling terms for membership in the EU in 1995. 17. Russia decides to join NATO's peace partnership plan. 18. Bosnian Muslims and Croats sign a creating a federation as a step toward ending the Balkans War. 19. UN Security Council condemns Hebron killings. 20. Cambodian government forces capture Khmer Rouge headquarters at Pailin. 22. Schindler's List sweeps 7 Oscars; Spielberg gets the best director honour. 24. Mexico's popular Presidential candidate Luis Bonaldocolosia, shot dead. 28. The US military formally ends its role in Somalia. Eminent absurdist, playwright Romanian born Eugene Ionesco, 81, dies in Paris. 29. Media mogul Silvio Berlusconi and his neo-fascist and federalist allies win a stunning victory in Italian elections. 31. Zulu-dominated Natal province in South Africa put under emergency; Israel and the PLO signs agreement for allowing international observers in Hebron and resuming peace negotiations.

April 2. Israel agrees to a 10000 strong Palestinian police force in Gaza and Jericho. 4. The Dalai Lama declares the Tibetan boy Ugyen Thinly Dorji as the new Karmapa. 6. The exiled Haitian President, Jean Berstrand Aristide ends the 12 year old treaty that allowed the US to stop fleeing Haitian refugees at sea and return them home. 7. Presidents of Rwanda and Burundi



Ionesco, the absurdist

assassinated. 9. Cease-fire in Rwanda; interim Government led by Parliament President Theodor Sindhi Kugabo formed Kuwait; Government headed by PM Prince Sheikh Said Al Abdulla Al-Sabah resigns to pave way for a cabinet reshuffle. Talks to end Zulu issue in South Africa fails. 12. 117 countries assemble for a ministerial meeting at Marrakesh, in Morocco to sign the final draft of the GATT agreement. 15. 125 nations sign the final draft of the GATT negotiations at Marrakesh, Morocco; Russia wins approval as peacekeeper to the 12 member CIS. 16. China bans foreign cable T.V. 19. South Africa's Inkatha Freedom Party agrees to take part in the elections; Rodney King, awarded \$ 3.8 million in damages. 20. In Cairo, Israel and PLO reach accord on transferring civilian government powers to Palestinians in Gaza and Jericho. 22. Japanese Foreign Minister Tsutomu Hata nominated to the Prime Minister's post. 23. Former U.S. President, Richard Nixon, 81, dies in New York. 26. South Africa goes to the historic all-race election ending three centuries of apartheid. 28. Japanese PM Tsutomu Hata forms a minority coalition government.; Bill Clinton and Al Gore meet Dalai Lama in Washington despite China's objection. 30. African National Congress voted to power in South Africa.

May 4. Israeli PM Yitzhak Rabin and PLO leader Yasser Arafat sign historic accord giving Palestinians their first taste of self-rule in Gaza strip and Jericho; Euro fighter 2000 built jointly by Britain, Germany, Italy and Spain makes its maiden flight. 5. American boy Michael Fay, slashed four times with a rattan cane in a Singapore prison for acts of vandalism. 7. Communists emerge on top in Hungary's poll. 9. Mandela elected first President of non-racial South Africa; Yemen's President, Ali Abdullah Saleh, sacks the country's PM Haider Abu Baker Al Attas. 10. Mandela takes over in South Africa signing the final epitaph on racism. 11. Palestinian cops enter Gaza amid festivities ending 27 years of Israeli occupation; Media tycoon Silvio Berlusconi sworn in as Italy's PM. 16. Pakistan may lose plebiscite on Kashmir, says Benazir Bhutto. 18. Jacqueline Kennedy Onassis, 64, dies; In an address to the US Congress, PM Rao calls for pact on nuclear no first use. 20. Baikili Muluzi sworn in as the first democratic President of Malawi; India and the US decide to revive the Indo-US Joint Commission after a lapse of eight years. 21. Miss Sushmita Sen crowned Miss Universe in Manila. 22. Rwandan rebels capture the government army barracks in the capital Kigali; South Yemen secedes from the Yemen it joined four years ago and elects Ali Salem al-Baidh president. 24. About 250 Haj pilgrims killed in stampede; Roman Herzog

elected first President of unified Germany; 'Pulp Fiction' by US director Quentin Tarantino wins the Golden Palm in Cannes film festival; China's Ge You named best actor and Italy's Virna Lisi the best actress. 25. The UN lifts embargo against South Africa; Soleshenitysn, Nobel-prize winning Russian writer, ends 20 years of exile in the West to return home. 28. Jerusalem cited as central capital of Palestine in the draft constitution prepared by the PLO; Clinton renews the MFN status for China putting his human rights objections in cold storage. 29. Former East German communist dictator Erich Honecker, 81 dies in Chile.

June 3. At Portsmouth President Clinton and Queen Elizabeth celebrate the 50th anniversary of the D-day landing in Normandy (1944). 4. Indian army successfully testfires the short range surface to surface missile, Prithvi. 7. Swedish Parliament approves a law allowing homosexuals to marry. 10. China conducts nuclear test and calls for total ban. 11. Moshood Abiola, the undeclared winner of the 1993 annulled elections declares himself as President of Nigeria. 13. North Korea announces decision to withdraw from IAEA; White House rolls out red carpet for Japanese Emperor Akihito and Empress Michiko on their first ever official visit to the US. 15. Vatican and Israel establish full diplomatic relations. 18. Koreans agree to hold Summit through the mediation of former US President Jimmy Carter. 21. Russia enters NATO on West's terms. 23. UN General Assembly readmits South Africa almost after 20 years of the suspension for membership on November 12, 1974. 24. Sri Lankan Parliament dissolved to pave way for elections in August, '94, six months ahead of schedule. 25. Japanese PM Tsutomu Hata resigns. 26. Afghan PM Gulbuddin Hekmatyar loses ground to President Burhanuddin Rabbani's forces. 29. Socialist leader Tomiichi Murayama elected PM of Japan.

July 1. Colombian world cup footballer Andres Escobar who was responsible for the self goal against the US, shot dead in Medellin. 5. Palestinian self-government set up in Jericho and Arafat sworn in as head of state. 6. Cambodia's parliament outlaws the Khmer Rouge guerillas. 8. Space Shuttle Columbia lifts off with the first ever Japanese space woman, Chiaki Mukai; Civil war in Yemen ends with the Northern troops overrunning the southern capital. 9. North Korean dictator Kim Il Sung, 82, dies. 10. Nepa PM GP Koirala resigns following loss of a crucial vote in Parliament. 11. Khmer Rouge announce provisional government in the northern province of Preah Vihear; Haiti ousts observers from the UN and OAS; Myanmar softens hardline on dissident Aung San Suu Kyi. 13. Kim Jong Il, 52, eldest son of Kim Il Sung promoted chief o



North Korea's communist party, government and army. 15. Jacques Santer elected to succeed Jacques Delors as President of European Commission. 17. First fragment from comet Shoemaker-Levy 9 smashes into Jupiter leaving a scar half the size of earth. 19. Pasteur Bizimungu sworn in as President of Rwanda. 21. Myanmar offers to free dissident Aung San Suu Kyi provided she leaves the country at least for five years. 22. Kuwaiti Emir turns down plea for Islamic law. 23. Gambian President Sir Alaji Dawala Kairaba ousted in a bloodless coup. 25. In Washington, Israel and Jordan sign a declaration ending 40 years of belligerency between Jordan and Israel.

August 10. Bangladeshi writer Taslima Nasreen flees to Sweden. 17. Sri Lanka Freedom Party-led People's Alliance led by Chandrika Kumaratunge comes back to power after 17 years. 19. Chandrika cabinet sworn in in Sri Lanka. Sirimavo Bandaranaike made PM. Two time Nobel laureate Linus C. Pauling, 93, dies in California; Clinton abruptly ends a 28-year old US open door policy for Cuban refugees. 22. Seven Indian peace keeping soldiers killed in an ambush in Somalia. 30 Colombo lifts blockade against Jaffna. 31. IRA announces unconditional cease-fire in Ireland.

September 1. Qadhafi exhorts for peace on the 25th anniversary of his ascendancy to power in Libya. 2. Emergency withdrawn in Sri Lanka. 3. In Moscow President Yeltsin and China's President Jiang Zemin sign accord to end nuclear

stand off. 4. Osaka's Kansai international airport, the world's most expensive, opens. 9. The US and Cuba reach agreement to reduce the exodus of refugees from the communist island. 13. The 10-day long international conference on Population and Development (ICPD) in Cairo agrees on fertility regulation, safe abortion and the rights of the families to reunify in the event of migration. 15. Nobel laureate Wole Soyinka under detention in Nigeria. 16. Buthelezi eased out of Zulu leadership by the Zulu King. 19. Haiti invasion averted; Gen. Raoul Cedras agrees to step down; Social democrats win in Swedish election; Carl Bildt quits. 21. LTTE says it is ready to give up demand for Eelam. 28. Yeltsin and Clinton sign arms reduction accord in Washington; 800 people drowned when a Baltic-sea ferry sank off Finland.

October 2. The 12th Asian Games open in Hiroshima. 5. Fifty members of a cult, 'The Solar Tradition' commit suicide at a farm in Cheiry, Switzerland. 7. China conducts its third nuclear test within a year. 10. Two Americans win the Nobel Prize for Medicine. 11. Myanmar begins extensive privatisation of state-owned economic enterprises; Gen. Raoul Cedras resigns from the Haitian army and leaves the country. 14. Arafat, Rabin, Peres share Nobel Peace Prize; Japanese novelist Kenaburo Oe wins the prize for Literature. 15. Aristide returns to Haiti to launch a new era; Kuwait, the US and Britain reject Iraq's conditional offer to withdraw. 16. In Germany Helmut Kohl's Christian Democratic Union returned to power with narrow majority. 22. Gamini Dissanayake, the opposition candidate for President in Sri Lanka and 60 others killed in a bomb blast in Colombo. 25. Mrs. Sirima Dissanayake selected as United National Party nominee for Presidential elections in Sri Lanka. 26. Israel and Jordan sign Treaty of Peace ending 46 years of hostility.

November 6. 500 UNITA rebels die in government troop attack on its headquarters. 10. Iraq formally recognises Kuwait as a sovereign state. 11. Sri Lankan cabinet nominates Sirimavo Bandaranaike as PM. 12. Chandrika sworn in Sri Lankan President. 15. Kohl re-elected German Chancellor with narrow majority; Nepal goes to mid-term polls. 16. Irish PM Albert Reynolds resigns. 17. South African President Mandela signs a new law that allows blacks to make claims for land taken from them during apartheid. 19. Angola's Government and UNITA rebels sign peace treaty. 20. Bertie Ahern elected leader of the ruling party in Ireland replacing Albert Reynolds as PM. 29. Manmohan Adhikari, appointed PM of Nepal.

December 22. Russia increases attack on the rebellious Chechen Republic. 26. Pakistan asks India to close down its consulate in Karachi.

World Economy

At the end of 1994, 1.3 billion persons in the world were living in absolute poverty, according to ILO report (1994); half of them were in south Asia, a quarter in east Asia, and 16 % in Africa.

The gap between 20% of the world population at the bottom of the ladder and 20 % of the richest has widened from one to 20 in 1960 to one to 60 in 1990. According to the studies carried out by ILO, the most deprived population are mostly rural with an increasing proportion of them being women. Among the most frequent causes of poverty are illiteracy and lack of training, lack of land in rural areas, difficulty in obtaining credit, discrimination against women and ethnic people, demographic growth, rural exodus and the anarchical development of cities.

In spite of proven protection the developed countries have not been spared by the spread of poverty and marginalisation. In 1994, 15% of the 12 European Union countries were living under poverty line. About 2.5 m. people were estimated homeless in these countries.

According IMF Annual Report, 1994, the world output growth expanded 3.1%. Following increase of 1.7% in 1992 and 2.3% in 1993, this indicates that the protracted global economic slowdown of the early nineties has ended. The recent trend of slower growth in industrial countries roughly 2.5% a year, compared with 5—6% in developing countries, continues.

For the first time during nineties, the growth in world output of goods and services per person moved solidly ahead of population. After two consecutive declines in early nineties, it edged up by 0.7% in 1993 and 1.4% in 1994. Even with these gains, however, output per person in 1994 barely regained the 1990 level.

There was a decline in the economic performance of industrial countries, continued strong growth in developing countries, and persistent contraction in states of the former Soviet Union and, to a lesser extent, in transition economies of Central and Eastern Europe for a fifth consecutive time. World trade volume increase was subdued. Inflation decreased in developed countries but picked up in developing countries.

The world output growth in 1994 at 3.1% showed a modest rise from 1.8 % in 1992, mainly due to the strong performance of the developing countries. In reality the increased output of the industrialised countries slowed to

1.2% from 1.6% in 1991. Recovery in the US with 3.7% economic growth established in 1994 was the most robust in six years. This combined with Canada's economic growth of 4.1% meant that North America was leading the economic recovery in industrial countries.

For Europe, the improved performance in 1994 signalled a recovery after being in economic crisis for the last few years.

Most of the European Union countries, and Japan are still mired in recession. Output decline in Germany, France, and Italy ranged from 1.2% to 0.7% in 1993. German reunification though put a strong break on the economy's growth, which contracted by 1% in 1993, grew 2.3% in 1994. In 1995 it has consolidated the fiscal system and improved demand in Europe. France, going from a decline of 1% in 1993 grew to nearly 2% in 1994. The 3.3% expansion in the UK in 1994 was the fastest of the European industrialised countries. Japanese recession is attributed to the lingering effect of the declines in asset prices, low level of consumer confidence and continuing strengthening of yen against dollar. Japan is pumping \$110 billion into the economy to prevent it spiralling into absolute decline.

Unemployment in industrialised countries edged up to 8.25% from 7.75%, with France, Italy, UK, Canada and Australia showing unemployment rates above 10%. While high unemployment levels partly reflect the cyclical downturn in activity, there is a growing worry that structural unemployment has gone up. Structural unemployment specially in Europe is related to pervasive rigidities in the labour mobility, excessive social security benefits which may discourage search for jobs, and insufficient attention to retraining of labour.

Developing countries as a group continue to exhibit robust growth which has risen steadily from 3.7% in 1990 to 6.1% in 1993. There are however, large regional variations. At the upper end, developing countries in Asia were the star performers registering a mean growth of 8.4% in 1993. China's output increased by 13.5% with South Korea, Taiwan, Hong Kong, Singapore, Malaysia, Indonesia and Thailand showing high growth. India's output grew in 1993-94 at 3.8% and recorded 4.5% growth rate in 1994-95. Economic activity in Africa remained subdued with 1.1% in 1993 due to such reasons such as drought, decline of commodity prices, and internal conflicts in several countries. But i

1994 Africa as a region grew at 3.3% marking for the first time economic growth had exceeded that of population in several years. South Africa, with a 3% rate is showing a slow economic recovery. North African countries also showed substantial growth in 1994 ranging from 9% in Morocco to 3% in Algeria. Africa's expansion is led by strong commodity prices for nearly all the region's export products. Notwithstanding this recovery, some countries' growth took a dip both economically and politically like Somalia, Rwanda, andaire.

Developing countries in western hemisphere and middle-east showed 3.4% and 4.7% growth, respectively. Within Latin America, overall economic growth slowed from 3.4% in 1993 to 2.8% in 1994. The leaders were Peru, Argentina, Colombia, and Chile, with respective growth rates of 9, 6, 5 and 4 percent.

SADC common market

Twelve southern African leaders who met in Johannesburg in August, 1995 to revitalise the Southern African Development Community (SADC) set an ambitious target to be achieved by 2000—a southern African economic community, with free trade, free movement of people and even a single currency.

SADC, which began in 1980 as a loose grouping of countries hoping to do without white-run South Africa, signed an agreement which requires them to share the scarce water that flows over their land. No country would be allowed to dam its rivers without consulting others downstream.

In order to achieve the dream of creating a common market, SADC is drafting a treaty that would eliminate internal trade barriers and export subsidies within the region by 2000. The intentions are fine but the difficulties are many.

Intra-regional trade is an area in which SADC's success lies. At the moment only 10% of southern Africa's trade takes place within the region. The 12 members have to trade more with each other, for any effective cooperation to materialise.

The 12 SADC countries are: Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

Moderating the regions growth were a decline of 3.7% in Venezuela and slower growth in Brazil, the region's largest economy. The economies in transition as a group continue to experience serious contraction in activity even though their output decline decelerated from 15% in 1992 to about 9% in 1993. Since 1990, these countries have registered a cumulative output of 35%. The CIS countries are gradually improving due to a steady pursuit of structural reforms, a reasonable management of macro-economic policies. Poland had its third annual gain, growing at 4.5% in 1994. At 8% Albania's growth was the fastest in the region. Others that have turned their corner include the Czech Republic, Croatia, Slovenia, Armenia, Mongolia, Turkmenistan, and Hungary. The three Baltic states recorded gains in output ranging from 4.1% in Latvia to 6.0% in Estonia. Yet the Russian economy, the largest in the region, shrank by 12% in 1994. Despite efforts to reform enterprises through privatisation in Russia, economic growth has not taken off as expected. Besides, there is lack of political consensus on the speed and content of reforms.

The increase in world trade volume decelerated significantly in 1993 to 2.4% from 4.5% in 1992 mainly because of the steep decline in imports from industrial countries. Since 1990, exports to the developing countries have also gone up from 21% to 28%. Growing trade among developing countries and the fact that they have pushed up their rates of growth steadily over an extended period when economic activity in the industrial countries has been at a low ebb, are significant trends. The successful conclusion of the GATT agreement in 1995 has induced a new breath into different economies and widening of global trade with lesser tariff and other restrictive barriers.

In the face of the modest level of trade activity, in most industrialised countries, their average rate of inflation declined in 1993 to 2.9%. Consumer prices in USA remained unchanged at 3% while inflation in Australia, Canada, Denmark, Ireland, Japan, France, Netherlands, and New Zealand was 2% or less. Average inflation in developing countries rose to 46% though half the countries had inflation of 7% or below. In Asia, average inflation rose to 9.5% with a large rise in inflation in China to well above 20%. Notably, inflation in Turkey, Iran, and Brazil remained very high. The worst performance was that of the countries in transition where consumer prices rose by an average of 687%. Russia recorded inflation of 20% per month.

World output growth rate has moved up: 0.7% in 1991, 3.1% in 1994 and 3.6% as projected by IMF economists, in 1995, if materialised, could be the largest annual gain in the nineties.

World Population Trends

Population explosion, which developed around 1930, is a global problem. The 1930 world of 2b people grew by $2\frac{1}{2}$ times within a period of less than 6 decades. The population is expected to reach 6b by 1998. Annual additions to world population in the next decade will average 97 million. Nearly all of this population growth will be in Africa, Asia and Latin America. Over half of it will be in Africa and South Asia.

Family planning has brought down rates of population growth to some extent. (Contraceptive use has increased four-fold since 1965-70.) UN projections put annual increments above 86 million until 2015. It took 123 years for world population to increase from 1 billion to 2 billion, but succeeding increments of 1 billion took only 33 years, 14 years and 13 years. At mid-1995, world population was about 5.75 billion.

China (1221 m.) and India (936 m.) are the two most populous countries. India's population density is 270 persons per sq. km., whereas China's is only 120. India's population growth

rate is about 2 % a year and China's 1.4 %.

Ever since the five billionth baby was born on July 11, 1987, it has been observed as World Population Day.

Cairo Conference The International Conference on Population and Development (ICPD) at Cairo in September 1994 was the start of a new era in population and development. The ICPD Programme of Action, the landmark agreement at the Conference, explicitly places human beings, rather than human numbers, at the centre of all population and development activities.

Investing in people, in broadening their opportunities and enabling them to realize their potential as human beings, is the key to sustained economic growth and sustainable development, as well as to balanced, sustainable population growth.

Reproductive Health Care The Programme of Action emphasizes the need for gender equality and equality and the support of men for the empowerment of women. It enunciates the right to universal, comprehensive reproductive health

Migrants of all hues

The number of UN-registered refugees in the world has risen consistently on an average of more than 12 percent a year since 1976. If this trend continues, the world's refugee population will have doubled to 46 million by 2000.

Refugees numbered only about 2.5 million in the mid-seventies, then the figure rose to 15 million by 1989, and today they are 23 million. These numbers reflect the strict standard established by the 1951 UN convention on Refugees, which remains in force today. This follows a definition of refugees solely in terms of persecution: any person who "owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality and is unable to return to it". This definition, a remnant of the Cold War, was meant largely to weaken the former Soviet Union by granting asylum to people who fled their country.

As per this official definition, several classes of people fall outside it. For example, those who escape famine, those who fear that they are

losing the means of feeding their children, and those pushed out by natural disasters. They are not, therefore, eligible for asylum in other countries. They join the "internationally displaced" — people forced from their homes but still in their home countries. The internationally displaced number about 27 million worldwide. These do not include people who leave their homes for economic reasons.

Then there are the illegal immigrants, who are around 10 million. They flee out of fear or go out seeking better opportunities.

There were about 100 million migrants in 1985 — people who had moved to improve their standard of living.

The number of those who move from rural areas to cities within their own countries is large. In China alone, they number more than 100 million, and worldwide they outnumber all other kinds of migrants.

Migration is a response to the workings of modern economics, transportation system, and communications; to political pressures; and to individual drives.

are, including family planning, and it points out that for women, a context which also includes education and access to resources is essential as the basis for empowerment.

These principles are at the core of the ICPD Programme of Action. For many countries, action has already begun.

In the past 30 years, developing countries have made significant gains in providing better primary health and family planning and other elements of reproductive health care resulting in lower birth and death rates, increased life expectancy and reduced infant mortality. This progress is linked to higher levels of education and income, a narrowing "gender gap" in health and education, increased political commitment to population policies, and changes in individual attitudes about family planning.

Nevertheless, there continues to be great diversity among countries and regions. Maternal death rates are 15 to 50 times greater in the developing world than in most developed countries. Half a million women die each year as a consequence of pregnancy and childbirth; most of these deaths could be prevented with quality prenatal examinations, referrals and emergency obstetric care.

World-wide, some 350m couples lack access to a full range of modern family planning information and services; an estimated 120m women would practise family planning if a modern method were available, affordable and acceptable to their partners, families and communities.

There are nearly 960m illiterate persons in the world, two thirds of them women; some 130m children, including over 90 million girls, are denied access to primary schooling.

The ongoing shift of rural populations to urban areas is placing growing strains on the resources of developing countries. At the same time, migration between countries continues to rise. In many countries, longer life expectancy and declining birth rates are increasing the proportion of elderly people in the population.

The ICPD Programme The Cairo Conference agreed on a Programme of Action for the next 20 years in the field of population and development. The Programme urges all countries to make reproductive health care and family planning accessible through the primary health care system to all individuals of appropriate ages no later than 2015; the financial resources required for this effort in developing countries and those with economies in transition is estimated at \$17b for the year 2000, increasing to \$21.7b by 2015. Developing countries will continue to meet up to two thirds of the cost themselves; approximately one third - \$5.7 billion in 2000 and \$7.2b in 2015 - will have to come from external sources.

Children per woman

Average Number of Children per woman (Total Fertility Rate) in selected countries of the developing world.

Rwanda	8.5
Malawi	7.6
Uganda	7.3
Yemen	7.1
Ethiopia	7.0
Somalia	7.0
Burundi	6.8
Oman	6.7
Zaire	6.7
Burkina Faso	6.5
Afghanistan	6.4
Nigeria	6.4
Kenya	6.3
Libya	6.3
Laos	6.1
Namibia	6.0
Iran	5.9
Haiti	5.8
Honduras	5.6
Guatemala	5.5
Pakistan	5.4
Zimbabwe	5.3
Nepal	5.1
Papua-New Guinea	4.8
Mongolia	4.6
India	4.4
United Arab Emirates	4.4
Cambodia	4.2
Bangladesh	4.1
Myanmar	4.1
South Africa	4.1
Egypt	3.9
Malaysia	3.5
Indonesia	3.0
Venezuela	3.0
Israel	2.8
Argentina	2.7
Brazil	2.6
Chile	2.6
Turkey	2.5
North Korea	2.4
Sri Lanka	2.3
China	2.2
Thailand	2.0
Cuba	1.8
Taiwan	1.8
Singapore	1.6
South Korea	1.6
Hongkong	1.4

World Languages

None has yet taken a satisfactory count of the world's languages. There are many estimates. They vary by thousands. The main cause of confusion is how to distinguish a language from a dialect.

Linguists have not agreed as to what distinguishes a language from a dialect. In view of this, differing estimates are quite possible and admissible.

Figures ranging from 2,500 to 5,000 languages have been given. It is impossible to know what the first languages were. What is certain is that for culture to have developed as it did, languages must very quickly have had to acquire the same complexity and general structure that they have now. Language is then the first cultural invention. Language is the basic and most complex communication system that exists. In fact, it can be argued that all languages on earth are approximately equally old, and all are equally complex in structure.

We have here adopted the estimate of some French and American linguists who have listed a total of 2796 languages.

Of the 2796 languages mentioned, over 1200 are spoken by American-Indian tribes, most of which do not number more than a thousand people. African-Negro groups speak some 700 different languages while the natives of Australia, New Guinea and other Pacific islands account for as many as 500 languages of their own. Add to this an estimated 200 minor languages of Asia of unknown origin and we find that the total number of the world's major languages (spoken by a million or more people) hardly exceeds 160; in other words, the overwhelming majority of the world's languages, say 85%, are spoken by numerically small groups, while some 15 % represent major languages.

The world's languages considered as families fall into 10 broad groups. 1. Indo-European, 2. Semito-Hamitic, 3. Sino-Tibetan, 4. Dravidian, 5. Ural-Altaic, 6. Malayo-Polynesian, 7. African-Negro, 8. American-Indian, 9. Caucasian, 10. Miscellaneous.

Indo-European Family The Indo-European languages may be subdivided into four major divisions. (a) *Germanic* includes English, German, Dutch, Swedish, Danish, Norwegian and Icelandic. (b) *Romance* includes French, Spanish, Portuguese, Italian and Romanian. (c) *Balto-Slavic* includes Russian, Polish, Ukrainian, Czech,

^u The term Indo-Hittite is now preferred to Indo-European. This will include Anatolian language and Indo-European proper.

Slovak, Serbo-Croatian and Bulgarian. (d) *Indo-Iranian* group may be conveniently divided into *Iranian* and *Indic* or Indo-Aryan branches. *Sanskrit* (Indic branch) is the original Indo-Iranian language that was brought into India by the Aryan immigrants. It is the earliest of the Indo-European languages to appear in recorded form. **Semito-Hamitic Family** comprises Arabic, Hebrew, Libyan, Berber, Galla, Amharic (Ethiopia) and Somali languages.

Sino-Tibetan Family is dominated by Chinese, which with its many dialects commands 700 million speakers out of a total of about 760 million for the whole family. Tibetan, Burmese, Thai and Korean languages form the rest of the family.

Dravidian Family includes the major languages of South India, Tamil, Telugu, Kannada and Malayalam.

Ural-Altaic Family includes Finnish, Hungarian, Turkish, Mongol and Manchu.

Malayo-Polynesian Family comprises Maori (native to New Zealand), Malagasy (Madagascar), Malay and Indonesian.

African-Negro group covers the major African languages, Sudanese, Guinean, Bantu, Hausa (Nigeria), Swahili and others.

American-Indian Family comprises many languages of the Red Indian tribes and includes the languages of the Eskimos and Aleuts.

Caucasian Family consists of a number of small languages like Georgian and Circassian.

Miscellaneous Among the lesser families, the *Austic family* apparently commanded a wide circulation in very ancient times. It is at present represented by tribal tongues like the *Munda* group in India. The aboriginal languages of Australia, Tasmania and New Guinea apparently belong to this group.

Basque, which is spoken on both sides of the Pyrenees in Europe, appears to be a remnant of a language family called Mediterranean, which has long since disappeared. The present speakers of Basque number nearly a million.

Basque is a very difficult language. The story goes that the devil tried to learn Basque, so as to tempt and ruin the Basques but gave up the attempt in despair. Basque has no affinity to any European language but bears close resemblance to many American-Indian tongues. Some linguists believe that Basque was the language of the lost continent, Atlantis.

The Ainu, the language of the white-skinned people of Hokkaido, the northern-most of

Japanese islands, the *Hyperborean* tongues of Siberia and Kamchatka and many other minor groups, too numerous to mention make up the rest of the world's languages.

As many as 22 languages are spoken by 50 million or more people. They are Chinese, English, Hindi, Russian, Spanish, German, Japanese, Arabic, Bengali, Portuguese, Malay (Indonesian), French, Italian, Urdu, Panjabi, Korean, Telugu, Marathi, Javanese, Vietnamese and Turkish. Approximate estimates of speakers of different languages made by various authorities differ greatly, sometimes by millions. This is so because the speakers of different languages are spread over the whole globe and no statistics beyond so-called guestimates are available about them.

Chinese, the first language in point of the number of speakers (1167 million) is mainly confined to China and Manchuria. *Japanese* is first and foremost the native tongue of the people in Japanese islands, but enjoys some currency in Korea and the nearby area of Asiatic mainland. *Malay* is spoken in Indonesia and Malaysia and is understood as far as the Philippines.

Arabic covers an incredibly huge area from Africa right across Asia and is learned wherever Islam predominates, though it is almost everywhere mingled with other languages of non-Arabic stock like Berber, Cushite and Hebrew. **English** covers nearly one-fifth of the Earth's surface. It is spoken by 470 million people in the world including North America, Europe, Asia, Africa and Oceania comprising Australia and New Zealand.

Russian dominates one-sixth of the total area of the Earth, being the national language throughout the former Soviet Union. But Russian is used as a native tongue only by half the population of Russia. The rest speak some 145 different languages.

Spanish appears in its homeland Spain and the ex-Spanish colonies. But these account for only a quarter of the Spanish-speaking population. The rest (three-fourths) are in the western hemisphere, covering Mexico, Central America, Cuba, Puerto Rico, the Dominican Republic and all South American countries barring Brazil and the Guyanas.

Portuguese is spoken in Portugal and the ex-Portuguese colonies. But the greatest number of Portuguese speakers is concentrated in Brazil.

German is practically confined to Europe where it is spoken in Germany, Austria and most of Switzerland. But it enjoys wide currency as a scholastic language all over Europe, especially in Czechoslovakia, Poland, the Netherlands, Hungary, Yugoslavia, Sweden and Norway.

French is the language of France, part of Switzerland, Belgium, ex-French possessions or Departments overseas and Canada (especially the province of Quebec). It is reputed as a language of culture in Europe, and is spoken by a few million non-French men, in addition to their mother tongues.

Italian, the language of Italy, is current in the former Italian colonies, Eritrea, Somaliland, Libya and Cyrenaica and is used by Italian emigrant groups living in various Mediterranean countries, USA, Argentina, Brazil, Uruguay and Chile.

Esperanto

Esperanto is an artificial language developed by the Polish oculist and philologist Ludwig Zamenhof (1859-1917) in 1887. It is the most commonly spoken of the international languages, invented languages intended to provide a universal means of communication to bridge the gap among speakers of the world's many natural languages. International languages are based on natural languages, with simplifications of grammar and spelling.

The language has been named after the pseudonym ("Doktoro Esperanto") its author used in his textbook describing the language. 'Esperanto' means "one who is hoping". The language is derived from a combination of Latin, the Romance languages and the Germanic languages.

Because of its logical structure, phonemic spelling and regular grammar, Esperanto can generally be learned more quickly than a typical natural language. The vocabulary is made up of a comparatively small number of roots, mostly of Romantic origin, with addition of some Germanic and Slavic ones, while a few are from other sources or invented. The language uses word bases common to main European languages. It has self-evident parts of speech (e.g. all nouns end in -o, all adjectives in -a), single and regular conjugation of verbs and simplified inflections.

Large sections of the public became aware of its existence toward the beginning of the 20th century, so for most people Esperanto has become a synonym of 'artificial international language'.

Two samples of Esperanto: *granda* means 'great', *mal* indicates the opposite, so *malgranda* means 'small'; 'Father' is *patro*, *-ino* means 'female', hence *patrino* means 'mother'.

The speakers of Esperanto are Esperantists.

Major Languages

Language	No. of speakers (in million) Mid-1993	Principal Areas			
Chinese	1167	China	Azeri	15	Azerbaijan
English	470	UK, USA, Canada Ireland, Australia, New Zealand	Hungarian	14	Hungary
Hindi	418	North India	Uzbek	14	Uzbekistan
Spanish	381	Spain Latin America	Cebuano	13	Philippines
Russian	288	Russia, The CIS	Fula (Peulh)	13	Cameroon, Nigeria
Arabic	219	Middle East	Sinhalese	13	Sri Lanka
Bengali	196	India, Bangladesh	Czech	12	Czechoslovakia
Portuguese	182	Portugal, Brazil	Greek	12	Greece
Malay-Indonesian	155	Malaysia, Indonesia	Malagasy	12	Madagascar
Japanese	126	Japan	Kurdish	11	Turkey, Iran, Iraq, CIS
French	124	France, Belgium, Canada, Switzerland	Afrikaans	10	South Africa
German	121	Germany, Austria, Switzerland	Galla (Oromo)	10	Ethiopia
Urdu	100	India, Pakistan	Madurese	10	Madura (Indonesia)
Punjabi	94	India, Pakistan	Swedish	9	Sweden
Korean	75	Korean North & South	Bulgarian	9	Bulgaria
Telugu	73	Andhra (India)	Catalan	9	Spain
Marathi	70	Maharashtra (India)	Malinke	9	West Africa
Tamil	69	Tamilnadu (India), Sri Lanka, Malaysia	Kazakh	8	Kazakhstan
Javanese	64	Java (Indonesia)	Quechua	8	Peru, Bolivia
Vietnamese	64	Vietnam	Tatar	8	Russia
Italian	63	Italy	Khmer	8	Cambodia
Turkish	59	Turkey	Zulu	8	South Africa
Tagalog	53	Philippines	Uighur	8	Sinkiang (China)
Thai	50	Thailand	Shona	8	Zimbabwe
Swahili	48	East Africa	Xhosa	8	South Africa
Ukrainian	47	Ukraine	Ilocano	7	Luzon (Philippines)
Polish	44	Poland	Lingala	7	Congo
Kannada	44	Karnataka (India)	Luba (Chiluba)	7	Zaire
Gujarati	41	Gujarat (India)	Panay-Hiligaynon	7	Indonesia
Hausa	38	Nigeria	Ruanda	7	Rwanda, Congo
Malayalam	35	Kerala (India)	Twi-Fante (Akan)	7	Ghana
Farsi (Persian)	34	Iran	Yi (Lolo)	7	China
Burmese	31	Burma (Myanmar)	Wolof	7	Senegal
Oriya	32	Orissa (India)	Finnish	6	Finland
Sundanese	26	Indonesia	Minangkabau	6	Sumatra (Indonesia)
Romanian	26	Romania	Miao	6	China
Assamese	23	Assam (India)	Mongolian	6	Mongolia, China
Pushtu	21	Afghanistan, Pakistan	Rundi	6	Burundi, Congo
Dutch-Flemish	21	Netherlands	Albanian	5	Albania
Serbo-Croatian	20	Croatia, Serbia	Armenian	5	Armenia
Amharic	20	Ethiopia	Baluchi	5	Pakistan, Iran
Yoruba	20	Nigeria	Kikuyu	5	Kenya
Sindhi	18	Pakistan, India	Norwegian	5	Norway
Ibo	17	Nigeria	Nyanja	5	Malawi, Zambia
Nepali	16	Nepal	Slovak	5	Czechoslovakia
			Somali	5	Somalia
			Tibetan	5	Tibet (China)
			Tajik	5	Tajikistan
			Santal	5	Eastern India
			Sylhetti	5	Bangladesh
			Batak Toba	4	Sumatra (Indonesia)
			Bikol	4	Luzon (Philippines)
			Georgian	4	Georgia
			Guarani	4	Paraguay
			Hebrew	4	Israel
			Kanuri	4	West Africa
			Kashmiri	4	India
			Kituba	4	Zaire
			Konkani	4	Karnataka (India)
			Lao	4	Laos

† Including (Mandarin-952, Cantonese-66, Wu-65, Min-50 and Hakka-34.

Luo	4	Kenya
Makua	4	Mozambique
Mbundu	4	Angola
More	4	Burkina Faso
Provençal	4	France
Sotho, Southern	4	South Africa, Lesotho
Tigrinya	4	Ethiopia, Eritrea
Tswana	4	Botswana, South Africa
Achinese	3	Sumatra (Indonesia)
Balinese	3	Bali (Indonesia)
Bhili	3	Gujarat (India)
Ewe	3	Ghana, Togo
Futa Jalon	3	Guinea, Sierra Leone
Ganda (Luganda)	3	Uganda
Kabyle	3	Algeria
Kamba	3	Kenya
Kongo	3	Zaire, Congo
Lithuanian	3	Lithuania
Samar-Leyte	3	Philippines
Shan	3	Myanmar
Shilha	3	Algeria, Morocco
Sotho, Northern	3	South Africa
Tamazight	3	Morocco, Algeria
Thonga	3	S. Africa, Mozambique
Türkmen	3	Turkmenistan

Languages with 2 million speakers each: Latvian (Latvia); Slovenian (Yugoslavia); Chuvash (Chuvash: Russia); Gondi (Eastern India); Bemba (Zambia); Macedonian (Macedonia); Kirghiz (Kirghizstan); Tulu (Karnataka: India); Mende (Sierra Leone); Aymara (Bolivia, Peru); Baule

(Cote de Ivoire); Brahui (Pakistan, Afghanistan, Iran); Buyi (China); Dong (China); Dyerma (Niger); Esperanto; Fulakunda (Senegambia, Guinea); Gilaki (Iran); Gusli (Kenya); Hadiyya (Ethiopia); Ijaw (Niger, Nigeria); Koari-Dairi (Indonesia); Lampung (Indonesia); Lwena (Angola, Zambia); Makassar (Indonesia); Mazandarani (Iran) Mein (China, Vietnam, Laos, Thailand); Ngulu (Mozambique, Malawi); Nung (China, Vietnam); Pampangan (Philippines); Pangasinan (Philippines); Romany (Europe, America); Sgaw (Myanmar); Temne (S. Leone); Tho (China, Vietnam); Tiv (Nigeria, Came-roon); Tonga (Zambia, Zimbabwe); Tumbuka (Malawi, Zambia); Wolaytta (Ethiopia).

Languages with 1 million speakers each: Mordvin (Mordovia); Estonian (Estonia); Bashkir (Russia); Fon (Benin); Beja (Sudan, Ethiopia); Chagga (Tanzania); Chiga (Uganda); Dimli (Turkey); Dogri (India); Edo (Nigeria); Gogo (Tanzania); Hani (China); Haya (Tanzania); Ho (Bihar, Orissa: India); Iban (Indonesia, Malaysia); Kenuzi-Dongola (Egypt, Sudan); Northern Khmer (Thailand); Luba-Shaba (Zaire); Lubu (Indonesia); Luhya (Kenya); Magindanaon (Philippines); Pattani (Malay, Thailand); Meit-hei (India, Bangladesh); Meru (Tanzania); Nkole (Uganda); Nupe (Nigeria); Rejang (Indonesia); Riff (Morocco, Algeria); Soga (Uganda); Songye (Zaire); Soninke (Mali); Tausug (Philippines, Malaysia); Tudza (Vietnam, China); Yao (Malawi, Tanzania); Zande (Zaire, Sudan).

He won on 'Xanthosis'



Oh, my God ! : Justin Carroll

Justin Tyler Carroll is a fourteen year-old student of Wynne, Arkansas. He won the 68th annual National Spelling Bee by correctly spelling 'xanthosis'. Xanthosis means a discolouration of the skin. Justin collected \$8,000 worth of prizes.

It was Afghanistan that won Chis Galezka, 13, of metropolitan Detroit a \$25,000 college scholarship. He finished first in the National Geography Bee in Washington in June, 1995. The final question was "Pashtu and Dari are languages of which mountainous, landlocked country in Central Asia?"

Chris Galezka knew it was Afghanistan. The 1994 winning word was 'antediluvian', won by Ned G. Andrews, Knoxville, Tennessee.

National Spelling Bee was instituted in 1925. Children under 16 years and not beyond the 8th grade are eligible to compete.

World Religions

Religions have played a very great part in the evolution of human civilization and culture. They evolved as a set of beliefs concerning the cause, nature and purpose of the universe and grew as an organised system of beliefs that bound people to become a close-knit society. Very often the religions spread out from the lands of their origin.

Hinduism has left its permanent impact on Indian life and culture. Buddhism wrought revolutionary transformation in the life and culture of the peoples of South-East Asia and China. Christianity and Islam spread among the peoples of Asia and Europe kindling latent fires and opening fresh chapters in the world's history.

The religions of the world may be grouped into three broad classes. 1. Leading religions, 2. Lesser religions and 3. Primitive religions. The leading religions are Buddhism, Christianity, Confucianism, Hinduism and Islam. The lesser religions include Jainism and Sikhism of India, Judaism of Palestine, Shintoism of Japan, Taoism of China and Zoroastrianism originally of Persia. The primitive religions count by the

thousands. They are all very small communities, each with a handful of votaries. They are principally found among the aboriginal tribes of Australia, the Americas, India, Burma, South East Asia, Indonesia and Africa.

Continental distribution In mid-1993 (total population: 5,575.9m.), Christianity had 1867.7m adherents world-wide. The continents of Latin America, Europe, and Africa had 23.8%, 21.9% and 18.3% of all Christians respectively. Former USSR had 111.6m (6.0%) followers of Christianity.

Muslims formed 18.2% of the world population. Out of the total Muslim population, 67.8% were in Asia. African Muslims formed 28.1%.

As for Hindus, almost all of them (99.4%) were in Asia.

This applied to Buddhists too—99.4% were in Asian countries.

Atheists world-wide numbered 241.8m. Their largest concentration was in Asia (167.2m, ie, 69.1 per cent.). Former USSR had 52.4m (21.6 per cent) and Europe 16.6m. (6.8 per cent).

Religious Population, mid-1993

Religion	World Population	Per cent
Christians	1,867,751,000	33.5
Roman Catholics	1,042,501,000	18.7
Protestants	382,374,000	6.9
Orthodox	173,560,000	3.1
Anglicans	75,847,000	1.4
Other Christians	195,470,000	3.5
Muslims	1,014,372,000	18.2
Nonreligious	912,874,000	16.4
Hindus	751,360,000	13.5
Buddhists	334,002,000	6.0
Atheists	241,852,000	4.3
Chinese folk religionists	140,956,000	2.5
New-Religionists	123,765,000	2.2
Tribal religionists	99,736,000	1.8
Sikhs	19,853,000	0.4
Jews	18,153,000	0.3
Shamanists	10,854,000	0.2
Confucians	6,230,000	0.1
Baha'is	5,742,000	0.1
Jains	3,927,000	0.1
Shintoists	3,336,800	0.1
Other religionists	19,183,000	0.3
Total Population	5,575,954,000	100.

(Source: Encyclopaedia Britannica Book of the Year, 1994.)

Sikhs totalled 19.8m., of whom 19.3m. (7.5 per cent) were in Asia.

Jains numbered 3.9m., with Asia contributing 3.8m. (97.4 per cent).

There were 123.7m. New Religionists in all Asia, again, contained 121.6m. (98.3 per cent) them.

Africa's total population of 703m. included Christian population of 341.2m and Muslim population of 284.8m. Tribal religionists were many as 70m.

In Europe, the total population stood at 711.8m, of whom 409.6m were Christians. There were as many as 57.5m people classified as nonreligious. Atheists were 16.7m.

In Asia (total population: 3,291.7m), whereas the number of Hindus was 746.5m, the nonreligious people were as many as 21.1m. Muslims (688.3m) came next.

In Latin and Northern America population in 1993 was 756.8m. Of these, 684.2m were Christians and 43.1m. were nonreligious.

Oceania (total pop: 27.6m.) had 22.6m. followers of Christianity and 3.5m. people falling in the nonreligious category.

Terminology (Table p. 326): **Other Christians** Catholics (non-roman), marginal Protestants, crypto-Christians, and adherents, Asian, black, and Latin-American indigenous churches.

Nonreligious Persons professing no religion, nonbelievers, agnostics, freethinkers, religionized secularists indifferent to all religion.

Hindus 70% Vaishnavites, 25% Shaivites, 2% Jains, 3% Sikh-Hindus and reform Hindus.

Buddhists 56% Mahayana, 38% Theravada (Theravada), 6% Tantrism (Lamaism).

Atheists Persons professing atheism, skepticism, disbelief, or irreligion, including irreligious (opposed to all religion).

New-Religionists Followers of all religion founded since 1800 and mostly since 1945.

Jews Estimates of the Jewish population worldwide differ widely; for detailed discussion see the annual "Whole Jewish Populations" article in the American Jewish Committee's *American Jewish Year Book*.

Confucians Non-Chinese followers of Confucius and Confucianism, mostly Koreans in Korea.

Other religionists Including 70 minor world religions and a large number of spiritist religions. New Age religions, quasi-religions, pseudo-religions, para religions, religious or mystic systems, and religious and semi-religious brotherhoods.

Total Population UN medium variant figures for mid-1993, as given in *World Population Prospects 1990* (UN, 1991).

Welcome, Faith



Patriarch of Russian Orthodox Church

For centuries God was banned in atheist Siberia. Of all the places in the former Soviet Union, it had the least regard for religion. Even before the advent of communism in faraway Moscow, opponents of the Russian Orthodox Church were banished to this godless gulag.

Things have changed. Side by side the economic boom in Siberia religion is also on the rebound. The two Russian orthodox churches in Novosibirsk, a city of one million inhabitants which is regarded as its capital, had been neglected for decades and their congregations dwindled to a few old-timers calling in for Sunday mass.

Today, there are three churches, a chapel under construction and four religious gathering halls. There are church schools, Sunday schools, masses, baptisms and most popular of all, a lot of religious singing. Services are well-attended despite the dark, bone-chilling cold of the long Siberian nights.

The new religious spirit is noticeable in the classroom, too. Though the elders say that religion has just been made more fashionable, there is no depth of belief and many of the older generation remain skeptical, Siberian youths are more enthusiastic about religion.

UN: Golden Jubilee

The United Nations, which celebrated its 50th anniversary in April, 1995, remains the hope and conscience of the world, more especially of the smaller nations among its 185 members. The UN and its 18 independent specialised agencies and 14 major Programmes and Funds embrace almost every man in every corner of the globe.

The year 1994 saw the Republic of Palau (area: 1,632 sq km) being admitted as the 185th UN member.

The 184th member, admitted to the UN in July, 1993, was Andorra, the parliamentary co-principality situated in the eastern Pyrenees on the French-Spanish border. Andorra (area: 464 sq km.), founded in 1278, was without a constitution until early 1993. This tax-free haven is nominally subject to the suzerainty of the French President and the Spanish Bishop of Urgel.

Eritrea and Monaco became U.N. members in May, 1993. Eritrea, situated on the African shore of the Red Sea, was until recently the northernmost province of Ethiopia. Monaco (area: 1.95 sq km.), a sovereign principality on France's south-eastern Mediterranean coast, had UN observer status since 1955.

The former Yugoslav republic of Macedonia became the 181st member in April, 1993, without a vote, or the hoisting of its flag. This unprecedented arrangement was part of a deal to meet Greek objections that Macedonia's name implies territorial claims in the northern Greek province of Macedonia.

The UN membership had reached 180 with the splitting of Czechoslovakia into Czech and Slovak republics in January, 1993. Georgia, the 179th UN member, was the last of the former Soviet Union republics to be admitted to the world body.

United Nations, an association of sovereign states bound by a Charter to maintain international peace and security came into being on 24th Oct. 1945. The Charter was signed by the

delegates of 50 nations on 26th June, 1945 in San Francisco. The UN has now on its roll almost all the independent countries of the world.

For a long time China was represented in the UN by Taiwan which styled itself Nationalist China. Communist China which truly represented China was kept out of the UN mainly on account of the US veto.

This anomaly was removed in 1971 by admi-

ting Communist China as the representative of all China in the UN. Red China thus became a permanent member of the Security Council. Taiwan not only lost its permanent seat on the Council but also its primary membership of the UN.

In December 1994 the UN adopted the *Charter of Economic Rights*. This charter consisting of 34 articles is a landmark in the history of UN. It includes the right

of each state to freely exercise full permanent sovereignty over its wealth and natural resources, to regulate and exercise authority over foreign investments within its national jurisdiction and to nationalise, expropriate or transfer the ownership of foreign property.

The 1974 declaration of rights recognised the imperative necessity of reducing disparities between developed, developing and underdeveloped countries of the world. It envisages a New International Economic Order (NIEO). To achieve this new order the UN Development Programme (UNDP) was inaugurated in 1975 under a Director General of Development.

Principal Organs of the UN are: General Assembly, Secretariat, Security Council, Trusteeship Council, Economic and Social Council, International Court of Justice.

Headquarters: First Avenue, UN Plaza, New York City, N.Y., USA.

General Assembly The General Assembly of the UN is the nearest that the world has yet come to the visionary Parliament of Man. The Assembly consists of the representatives of all



member states. Each state has one vote, but may send 5 representatives. The General Assembly meets at least once in a year. Special sessions may be summoned by the Secretary General, on request by the Security Council.

The General Assembly passes the annual budget of the UN and determines the contribution payable by each member. It receives and considers the reports of the special committees including the Security Council. Important questions are decided by a two-thirds majority and other questions by a simple majority.

The General Assembly elects the non-permanent members of the Security Council, the members of the Economic and Social Council and the elected members of the Trusteeship Council. The Judges of the International Court of Justice are elected by the General Assembly, in conjunction with the Security Council. The General Assembly elects its own President and Vice Presidents every year.

President: Freitas do Amaral (Portugal)

Security Council consists of 15 members, each of which has one vote. There are five permanent and 10 non-permanent members elected for a 2-year term by a two-thirds majority of the General Assembly. The permanent members have the power to veto any move.

Retiring members are not eligible for immediate re-election. Any other member of the United Nations may be invited to participate without vote in the discussion of questions specially affecting its interests.

The Presidency of the Security Council is held for one month in rotation by the member states in the English alphabetical order of their names.

Permanent Members: China, France, Russia, UK, USA. **Non-permanent Members:** Indonesia, Germany, Italy, Botswana and Honduras (until Dec.31, 1996). Argentina, the Czech Republic, Nigeria, Oman and Rwanda (until Dec.31, 1995)

The expansion of the Security Council to include 'new powers' such as India, Germany and Japan as permanent members has been suggested by various fora. India has formally staked its claim to a permanent seat on the Council as and when it is expanded.

Economic and Social Council is responsible under the General Assembly for carrying out the functions of the United Nations with regard to international economic, social, cultural, educational, health and related matters.

The Economic and Social Council consists of 54 Member States elected by a two-thirds majority of the General Assembly. The Council has the following Regional Economic Commissions: ECE (Economic Commission for Europe, Geneva); ESCAP (Economic and Social Commission for Asia and the Pacific, Bangkok); ECLA (Economic Commission for Latin America, Santiago, Chile);

ECA (Economic Commission for Africa, Addis Ababa). ECWA (Economic Commission for Western Asia, Baghdad).

Trusteeship Council The Charter provides for an international trusteeship system to safeguard the interests of the inhabitants of territories which are not yet fully self-governing and which may be placed thereunder by individual trusteeship agreements. These are called trust territories.

All of the original 11 trust territories except one, the Republic of Belau (Palau) administered by the USA, have become independent or joined independent countries.

International Court The International Court of Justice was created by an international treaty, the Statute of the Court, which forms an integral part of the United Nations Charter. All members of the United Nations are *ipso facto* parties to the Statute of the Court. There are 15 judges.

President: Mohammed Bedjaoui (Algeria)

The Court has its seat at The Hague, but may sit elsewhere whenever it considers this desirable. The expenses of the Court are borne by the UN.

Secretariat is composed of the Secretary-General, who is the chief administrative officer of the organization, and an international staff appointed by him under regulations established by the General Assembly. However, the Secretary General, the High Commissioner for Refugees and the Managing Director of the Fund are appointed by the General Assembly. The first Secretary General was Trygve Lie (Norway), 1946-53; the second, Dag Hammarskjöld (Sweden), 1953-61; the third, U. Thant (Burma), 1961-71; the fourth, Kurt Waldheim (Austria), 1972-81; the fifth, Javier Peres de Cuellar (Peru), 1982-1991.

Secretary-General: Dr. Boutros-Boutros Ghali (Egypt), appointed Jan. 1, 1992.



Dream of Peace: UN

Giving U N financial muscle

A new international organisation has formed with the aim of giving the United Nations new strength in an era when the strength of individual nations is declining. The Global Commission to Fund the U.N. with offices in Washington, D.C., Asia and Europe, would like to turn the half-century-old organization from a supplicant that has to plead for funds into a business like, global nerve centre that provides highly valued services for fees. Under the new regime, a key function would be to negotiate international agreements on taxing globally harmful activities such as arms trafficking, pollution, and currency speculation.

One reason for the Commission's formation is that as national governments find themselves increasingly incapable of controlling world events, they are using the U.N. in what some Commissioners regard as a dangerously short-sighted manner—"either to justify foreign policy actions as suits them, or to send peace-keeping forces into impossible situations they would rather avoid, such as Bosnia, Rwanda, or Somalia." Those situations are impossible only because the UN is being financially starved by its own members; for every \$100 they spend on their own militaries, for example, they spend just 71 cents on peacekeeping. Besides UN has debts of more than \$1.7 billion and member States owed \$2.8 billion in unpaid assessment.

A second reason is the recognition that nations are losing sovereignty on all fronts, as

borders are rendered less and less relevant by such phenomena as increasing cross border migration, travel, communications, trade, and flows of capital. The latter, particularly, make it urgent that the management of trans-border activity be strengthened at the international level, says Commission co-founder Haze Henderson. Individual national governments are inept, even by their own reckoning, at trying to keep pace with the changing nature of capital flows in the electronic world—a realm described by Henderson as "financial cyberspace." As instantaneous transfers of wealth make borders obsolete, ponderous national bureaucracies have lost control—and even lost sight—of world's main flow of money. Multinational companies have become extra-national entities that easily bypass regulation or scrutiny, and are coming to exercise as much influence over human fortunes and misfortunes as governments.

A central strategy of the Commission would be to have the UN offer security to the nation on an insured basis, much like any other insurance service—with varying premiums paid by states for various levels of protection. With risk covered, the UN would seek investment capital from the international pool. At the same time, it would be in an ideal position to provide the missing mechanism for bringing order to what is now an increasingly chaotic electronic bazar.

Global Commission to Fund the UN, 151 K. St. NW, Suite 1120, Washington, D.C. 20005

The Secretary-General: is assisted by Under-Secretaries-General and Assistant Secretaries-General.

U N System The bulk of the work of the UN, measured in terms of money and personnel, is aimed at achieving the pledge made in Article 55 of the Charter to promote higher standards of living, full employment and conditions of economic and social progress and development.

In addition to the 18 independent specialized agencies, there are some 14 major United Nations programmes and funds devoted to achieving economic and social progress in the developing countries.

United Nations Development Programme (UNDP) is the world's largest agency for multi-lateral, technical and pre-investment co-operation. It is the funding source for most of the technical assistance provided by the United Nations system, and UNDP is active in almost

150 countries and territories and in virtually every economic and social sector. UNDP assistance is provided only at the request of Governments and in response to their priority needs integrated into over-all national and regional plans. Administrator James Gustav Speth (U) United Nations Children's Fund (UNICEF) established in 1946 as United Nations International Children's Emergency Fund to deliver post-war relief to children, now concentrates assistance on development activities aimed at improving the quality of life for children and mothers in developing countries.

Executive Director: Ms. Carol Bellamy (U) The UN Fund for Population Activities (UNFPA) carries out programmes in over 100 countries and territories. The Fund aims to build up capacity to respond to need for population and family planning; to promote awareness of population problems in both

developed and developing countries and possible strategies to deal with them; to assist developing countries at their request in dealing with population problems. More than 25% of international population assistance to developing countries is channelled through UNFPA.

Executive Director: Nafis Sadik (Pakistan).

Relief Agencies. Humanitarian relief to refugees and victims of natural and man-made disasters is also an important function of the UN system. Among the organizations involved in such relief activities are the Office of the UN Disaster Relief Co-ordinator (UNDRO), the Office of the UN High Commissioner for Refugees (UNHCR) and the UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA).

UNRWA was created by the General Assembly in 1949 as a temporary non-political agency to provide relief to the nearly 750,000 people who became refugees as a result of the disturbances during and after the creation of the State of Israel in the former British Mandate territory of Palestine.

Commissioner-General: Giorgio Giacomelli. **United Nations High Commissioner for Refugees (UNHCR)** was established by the UN General Assembly with effect from 1 Jan. 1951, originally for three years. Since 1954, its mandate has been renewed for successive five-year periods.

For its work on behalf of refugees around the world, UNHCR was awarded the Nobel Peace Prize in 1955 and again in 1981.

Headquarters: Palais de Nations, 1211, Geneva 0, Switzerland.

High Commissioner: Ms. Sadako Ogata (Japan).

Specialized Agencies: **International Atomic Energy Agency (IAEA)**, came into existence on 29 July 1957. Member States: 150. *Headquarters:* Vienna International Centre, P.O. Box 00, A-1400 Vienna, Austria.

Director-General: Hans Blix (Sweden).

United Nations Industrial Development Organization (UNIDO) It provides developing and underdeveloped countries with advice on all aspects of industrial policy. Converted into a specialised agency of UN in 1985. *Headquarters:* Vienna International Centre, Austria.

Director-General: Mauricio de Maria Campos (Mexico)

International Labour Organization (ILO) established in 1919 as an autonomous part of the League of Nations, is an intergovernmental agency with a tripartite structure, in which representatives of governments, employers and workers participate. In 1969 won the Nobel Peace Prize. Has 150 members. *Headquarters:* International Labour Office, CH-1211, Geneva 2, Switzerland.

Director-General: Michel Hanguenne (Belgium). **Food and Agriculture Organization (FAO)** The UN Conference on Food and Agriculture in May 1943, at Hot Springs, Virginia, set up an Interim Commission in Washington in July 1943 to plan the FAO, which came into being on 16th October 1945. Sponsors the World Food Programme. *Head-quarters:* Viale delle Terme di Caracalla, Rome, Italy.

Director-General: Jacques Diouf (Senegal) **United Nations Educational, Scientific and Cultural Organization (UNESCO)** A Conference for the establishment of an Educational, Scientific and Cultural Organization of the United Nations was convened by the Government of the UK in association with the Government of France, and met in London, 1 to 16 Nov. 1945. UNESCO came into being on 4 Nov. 1946.

Director General: Federico Mayor Zaragoza (Spain).

World Health Organization (WHO) An International Conference, convened by the UN Economic and Social Council, to consider a single health organization resulted in the adoption on 22 July 1946 of the constitution of the WHO. *Headquarters:* 1211 Geneva 27. *Rgl. Offices:* Alexandria, Brazzaville, Copenhagen, Manila, New Delhi, Washington.

Director-General: Hiroshi Nakajima (Japan). **International Monetary Fund (IMF)** The International Monetary Fund was established on 27 Dec. 1945 as an independent international organization and began operations on 1 March 1947. *Headquarters:* 700 19th St. NW, Washington, D.C., 20431. Offices in Paris and Geneva. *Managing Director:* Michel Camdessus (France).

International Bank for Reconstruction and Development (IBRD) Conceived at the Bretton Woods Conference, July 1944, the **World Bank** began operations in June 1946. *HQ* 1818 H. St. NW Washington, D.C.

President: James D. Wolfensohn.

International Development Association (IDA) A lending agency which came into existence on 24 Sept., 1960. Administered by the World Bank, IDA is open to all members of the Bank.

International Finance Corporation (IFC), an affiliate of the World Bank, was established in July 1956.

President: Lewis Preston (USA).

International Civil Aviation Organization (ICAO) Formed in the international Civil Aviation Conference held in Chicago from 1 Nov. to 7 Dec., 1944. *HQ* 1000 Sherbrooke St. West, Suite 400, Montreal, Quebec, Canada H3A 2R2. *President:* Dr. Assad Kotaite (Lebanon).

Secretary-General: Dr. Philippe Rochat (Switzerland).

Universal Postal Union (UPU) was established on 1 July, 1875, when the Universal Postal Convention adopted by the Postal Congress of Berne on 9 Oct. 1874 came into force. *HQ*: Weltpoststrasse 4, 3000 Berne 15, Switzerland.

Director-General: A. C. Botto de Barros (Brazil).

International Telecommunication Union (ITU) The International Telegraph Union, founded in Paris in 1865, and the International Radiotelegraph Union, founded in Berlin in 1906, were merged by the Madrid Convention of 1932 to form the ITU. *HQ*: Place des Nations, 1211 Geneva, Switzerland.

Secretary-General: Dr. Pekka Tarjanne (Finland).

World Meteorological Organization (WMO) Conference of Directors of the International Meteorological Organization (set up in 1873), meeting in Washington in 1947, adopted a convention creating the WMO. *HQ*: Case Postale, No. 2300, CH-1211, Geneva-2, Switzerland.

Secretary-General: G. O. P. Obasi (Nigeria).
The International Maritime Organisation (IMO) was established as a specialized agency of the UN by the UN Maritime Conference at Geneva in Feb./Mar. 1948. *HQ*: 4 Albert Embankment, London SE1 7SR.

Secretary-General: William O Neil (Canada).
World Trade Organisation (WTO), a permanent international trade body, which replaced General Agreement on Tariffs and Trade in January 1995. GATT was negotiated in 1947 and came into force on 1 Jan., 1948. There were 116 nations under GATT in 1993.

Headquarters: Centre William Rappard, 15 rue de Lausanne, 1211 Geneva 21, Switzerland.

Director General: Renato Ruggiero (Italy).

World Intellectual Property Organisation (WIPO) The Convention establishing WIPO was signed at Stockholm in 1967 by 51 countries and came into force in April 1970. In Dec. 1970, WIPO became a specialized agency of the UN.

Headquarters: 34, Chemin des Colombettes 1211 Geneva 20, Switzerland.

Director-General: Arpad Bogsch (USA).
International Fund for Agricultural Development (IFAD) The establishment of IFAD was one of the major actions proposed by the 1974 World Food Conference. The agreement for IFAD came into force on 30 Nov., 1977 following attainment of initial pledges of \$1,000 m. and the agency began its operations the following month.

Headquarters: 107 Via del Serafico, Rome, Italy.

President: Idriss Jazairy (Algeria).

World Organisations

The Asian Development Bank (ADB) was initially sponsored by the ECAFE and started functioning in 1966. It has 32 member countries and 15 other non-regional members.

In June 1974, ADB launched the Asian Development Fund (ADF) with a view to providing concessional credits to needy members.

President: Mitsuo Sato (Japan).
Headquarters: 2330 Roxas Blvd, Metro Manila, Philippines.

Amnesty International: A world-wide human rights organization with headquarters in London. The organization was established on May 28, 1961 with a newspaper appeal by the British lawyer Peter Berenson. Now it has more than 11,00,000 members in more than 150 countries with 6000 local groups in 70 countries in Africa, the Americas, Asia, Europe and the Middle East. It won the Nobel Prize for Peace in 1977.

Headquarters: Easton St, London WC1X 8DJ.
Secretary General: Pierre Sane (Senegal).

The Association of South East Asian Nations (ASEAN) is a regional organization formed

by the governments of Indonesia, Malaysia, the Philippines, Singapore and Thailand through the Bangkok Declaration which was signed by the Foreign Ministers of ASEAN countries on 8 Aug., 1967. Brunei joined in 1984. Its aim is to accelerate economic progress and maintain economic stability of South East Asia.

Each ASEAN capital has an ASEAN National Secretariat. The central secretariat for ASEAN is located in Jakarta, Indonesia, and is headed by the Secretary General, a post that revolves among the member states in alphabetical order every five years. Bureau directors and other officers of the ASEAN Secretariat remain in office for 3 years. Vietnam became the 7th member of ASEAN on July 28, 1995.

Secretary-General: Roderick Yong (Brunei).
Colombo Plan Founded in 1950 to promote the development of newly independent Asian member countries, the Colombo Plan has grown from its modest beginning as a group of seven Commonwealth nations into an international organization of 26 countries.

Member countries: Afghanistan, Australia,

Bangladesh, Bhutan, Myanmar, Cambodia, Canada, Fiji, India, Indonesia, Iran, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Maldives, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, UK and USA.

Headquarters: Colombo Plan Bureau, 12 Melbourne Avenue, PO Box 596, Colombo 4, Sri Lanka.

The Commonwealth The 50-nation Commonwealth represents a third of the nations of the world.

The idea of a Commonwealth of Nations comprising Great Britain, the Dominions and other Territories in the British Empire was first accepted at the Imperial Conference of 1926. In 1931, the Statute of Westminster recognised the status of the Dominions and defined the relations of the British Crown to the Dominions. The other territories were entitled to become members of the Commonwealth on attaining full self-government. In 1947, the office of the Secretary of State for Dominions was abolished and the Secretary of Commonwealth Relations assumed charge.

Some of the members like Canada, Australia and New Zealand recognise the Queen as the titular head of their States and have Governors-General appointed by the Queen on the recommendation of the State Cabinets. Some like India and Sri Lanka, who have elected Presidents of their own as Heads of State, recognise the Queen as the Head of the Commonwealth only.

Members of the Commonwealth are represented in other Commonwealth countries by diplomatic officers called High Commissioners in the place of Ambassadors representing non-commonwealth countries.

Fiji was expelled from the Commonwealth following military takeover of the country in '87.

Commonwealth Heads of Governments Meeting (CHOGM) has become an important international event. India hosted the summit in 1963 when Prime Minister Indira Gandhi presided over the deliberations. Malaysia hosted the 8th summit in October 1989.

Headquarters: Marlborough House, Pall Mall, London. SW1Y 5HX.

Secretary-General: Emeka Anyaoku (Nigeria).

Council of Europe In 1948 the Congress of Europe, bringing together at The Hague nearly 1000 influential Europeans from 26 countries, called for the creation of united Europe, including a European Assembly. This proposal, examined first by the Ministerial Council of the Brussels Treaty Organization, then by a conference of ambassadors, was the origin of the Council of Europe, which is, with its 24 member states, the widest organization bringing together all European democracies.

The Statute of the Council was signed at London on 5th May, 1949 and came into force 2 months later.

Headquarters: Palais de l'Europe, 67006, Strasbourg, Cedex, France.

Secretary-General: Catherine Lalumiere.

European Coal and Steel Community (ECSC) was created in pursuance of a treaty signed by six countries of Europe, in Paris in 1951. The countries were: France, Belgium, the Netherlands, Luxembourg, Federal Republic of Germany and Italy. The treaty affirmed a closer political union of the six countries and created a common market for coal, iron and steel.

European Economic Community (EEC) commonly known as the ECM European Common Market was brought into existence by the Treaty of Rome of March 25, 1957, signed by the six countries of ECSC France, Belgium, the Netherlands, Luxembourg, Federal Republic of Germany and Italy. Later Britain, Ireland, Denmark and Norway signed the treaty of accession, but Norway withdrew. With Greece, Spain and Portugal joining later, the EEC now has a membership of 12 countries. Four more members are to join the European body in 1995, viz. Sweden, Finland, Norway and Austria.

EEC has become the world's largest and most prosperous trading area, with a population of 320 million larger than that of any superpower. It was more recently referred to as EC (European Community).

The Treaty of Rome guarantees certain rights to the citizens of all member states (e.g. the outlawing of economic discrimination by nationality, and equal pay for equal work as between men and women) and sets out certain other areas where secondary legislation is to fill in the details.

President, European Commission: Jacques Santer.

European Free Trade Association (EFTA) was formed in 1960, as the result of a convention signed by seven countries of Europe at Stockholm. The countries were UK, Austria, Denmark, Norway, Sweden, Switzerland and Portugal. This Association was formed on the pattern of the EEC and has the same objectives. The seven countries that formed the EFTA were generally called the Outer Seven, in contradistinction to the six countries of the EEC, who were called the Inner Six.

Headquarters: Geneva.

Secretary-General: Georg Reisch (Austria).

The European Free Trade Area (see EEC) has provided common ground for economic co-operation among fifteen European countries: Belgium, France, Germany, Italy, Luxembourg, the Netherlands (original six of EEC), Denmark,

Ireland, UK (who joined the EEC in 1972) Austria, Iceland, Norway, Portugal, Sweden and Switzerland (the remaining members of the EFTA).

A European Economic Area (EEA) came into existence from Jan. 1, 1994 as a preliminary step of a proposed merger of EFTA and EC over the coming decade. A treaty forming the EEA was approved by the member states of EFTA and EC in Oct. 1991.

European Atomic Energy Community (EURATOM) was formed in pursuance of a treaty signed in Rome in 1957 by the six countries who formed the ECSC and the EEC. The work of the EURATOM is controlled by the same organs as those of the EEC. But the executive powers are vested in a commission of 5 members nominated by the Council of Ministers and advised by a Scientific and Technical Committee of 20 members and an Economic and Social Committee of 101 members. All major decisions are, however, taken by the Council of Ministers which is formed of one minister from each member state. The object of the EURATOM is the development of nuclear energy for peaceful purposes.

Headquarters: Brussels, Belgium.

European Parliament is composed of 518 members directly elected from all the 12 member states.

Headquarters: Luxembourg.

President: Klaus Haensch.

European Space Research Organisation (ESRO) was formally established in 1964 to promote collaboration among European States, in space research and technology exclusively for peaceful purposes. The members are Belgium, Denmark, France, West Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and UK. Austria, Ireland and Norway participate as observers.

Headquarters: Paris, France.

French Community is an organisation like the British Commonwealth. It offers to the French overseas territories, which manifest their will to adhere to it, new institutions based on the common idea of liberty, equality and fraternity and conceived with a view to their democratic evolution. This principle was accepted and promulgated by the Constitution of the (Fifth) French Republic which came into force in 1953.

Independent members of the Community are: 1. French Republic, 2. Central African Republic, 3. Republic of Congo, 4. Gabon, 5. Senegal, 6. Chad, 7. Madagascar, and 8. Djibouti.

The International Air Transport Association (IATA) was founded in 1945 to promote safe, regular and economical air transport and to provide a forum for collaboration. At present, there are 40 international airlines (active members) and 19 domestic airlines (associate mem-

bers).

The Annual General Meeting is the ultimate authority in the Association. The Executive Committee consists of 18 elected members.

Headquarters: Montreal, Canada and Geneva Switzerland.

INTERPOL 147-nation Police Commission, established in 1923, to co-ordinate police activities of participating nations with headquarters in Paris. After a terrorist bomb blast in May 1986, the headquarters was shifted to Lyons.

Secretary-General: Raymond Kendall.

North Atlantic Treaty Organization (NATO) In 1949 the foreign ministers of Belgium, France, Luxembourg, the Netherlands, UK, Canada, Denmark, Iceland, Italy, Norway, Portugal and USA met in Washington and signed the North Atlantic Treaty. Greece and Turkey joined the Treaty in 1952, the Federal Republic of Germany in 1955 and Spain in 1982. Thus NATO is an organization made up of 13 European states, two American states (Canada and USA) and an Asian state (Turkey).

The Council is the supreme body of NATO. It consists of the ministers of member states. The Secretary-General is appointed and responsible to the Council. The Military Committee is the supreme military body of NATO. It consists of the Chiefs of Staff of member states. In 1966 France withdrew from the Military Committee while remaining a member of the Council.

Headquarters: Brussels, Belgium.

Secretary-General: Willy Claes.

Organization of American States (OAS) The Charter of the OAS was adopted in April 1948 at the ninth International Conference of American States at Bogota, Colombia.

Thirty-two American countries are members of the Organization, with equal rights, each country possessing one vote.

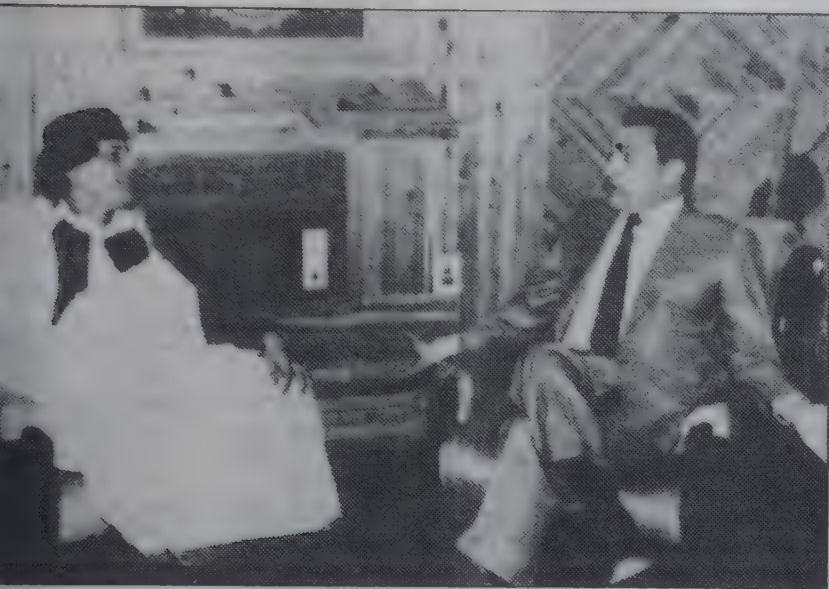
Headquarters: Washington DC., USA.

Secretary-General: Cesar Gaviria Trujillo.

Organisation of Arab Petroleum Export Countries (OAPEC) The organisation has members including Egypt which was readmitted in 1989. Other members: Algeria, Bahrain, Qatar, Libya, Iraq, Kuwait, UAE, Syria, Sudan, Arabia.

Organization of African Unity (OAU) came into being in May 1963, when the heads of African States met at Addis Ababa and signed a charter establishing a common organization of all African states.

Its chief objects are unity and solidarity among African States, elimination of colonialism and defence of the independence of member states. The supreme body in the OAU is the Conference of Heads of States or Governments. The official languages are Arabic, French, Portuguese and English and



Arab power: Gadaffi and Mubarak

gnized as working languages.

The organization has 51 member-states.

Headquarters: African Unity House, Addis Ababa, Ethiopia. **Chairman:** Dr. Vigashu Gerar (Ethiopia).

Secretary-General: Salem Ahmed Salem (Tanzania).

Organization for Economic Co-operation and Development (OECD) was formed in 1961 to replace the Organization for European Economic Co-operation (OEEC) which was started immediately after the Second World War for the reconstruction of war-ravaged European states. The OEEC was formed in response to an offer of aid from the US Secretary of State Mr. Marshall. This aid, since called the Marshall Aid, was to be used to rehabilitate the economies of European states ruined by the war. A conference of European states was held in Paris in 1948 to accept the proposal.

The OEEC changed its name in 1961 as OECD. The member countries are now Australia, Austria, Belgium, Canada, Denmark, FRG, Finland, France, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, UK and USA. Yugoslavia has a special status.

Headquarters: Paris, France.

Organization of the Islamic Conference (OIC) The Organization was established in May 1971, following a summit meeting of Muslim heads of state at Rabat, Morocco, in September 1969, and the Islamic Foreign Ministers' Conference in Jeddah in March 1970, and in Karachi, Pakistan in December 1970. It has 51 members

including PLO.

The Supreme body of the Organization is the Conference of Heads of States which meet every third year. It aims to promote Islamic solidarity, co-operation in various areas of national development, endeavour to eliminate racism, safeguard holy places and contribute to world peace.

Address: Kilo 6, Mecca Rd, POB 178, Saudi Arabia.

Secretary General: Hamid Al Ghabid.

The Arab League (The League of Arab States) is the outcome of a national awakening of the Arabs, following the fall of the Ottoman Empire in the First World War. It was formally

instituted on March 22, 1945.

The Arab League consists of a Council, a Secretary General, a few permanent committees and 22 specialized agencies.

The League considers itself a regional organization within the framework of the UN at which its Secretary-General is an observer.

Member countries (22): Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine L.O., Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE, and Republic of Yemen.

The Secretariat has its seat in Cairo.

Secretary General: Esmat Abdel Meguid (Egypt).

Organization of Petroleum Exporting Countries (OPEC) was the culmination of a long drawn out tug of war between international oil companies and the petroleum exporting countries. Most of these companies were gigantic cartels controlling production in more than one state. It was in their option to increase or reduce petroleum production in various countries and to manipulate prices. Very often they played one producing country against another by adopting various devices that affected the economy of the producing states without reducing the companies' profits.

The immediate provocation for the formation of the OPEC was provided by the announcement of oil companies that they were reducing the prices of Middle East crude. This meant that the countries concerned would be losing proportionately. A conference called together at Baghdad in 1962 decided to form the OPEC. This

conference was attended by the representatives of Iraq, Kuwait, Saudi Arabia (Arab Muslim states), Iran, a non-Arab but Muslim state, and Venezuela, a non-Arab, non-Muslim state in far away South America. These countries at that time controlled 80 per cent of the world oil trade.

Members (1991): Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. Membership is open to any other country having substantial net exports of crude petroleum, which has fundamentally similar interests to those of member countries.

In Sept. 1992, Ecuador left OPEC and Iran said it would go it alone in the oil market.

Headquarters: Vienna, Austria.

Secretary-General: Dr. Subroto.

Red Cross International Society for relief of suffering in time of war or disaster. International Committee of Red Cross was founded (1863) on advocacy of J. H. Dunant (1828-1910). Delegates from 14 countries adopted Geneva Convention (1864), providing for neutrality of personnel treating wounded etc. Over 100 national Red Cross societies now exist. Awarded Nobel Peace Prize (1917, 1944, 1963).

Headquarters: Geneva.

Scouts and Guides Scouting is a worldwide organised movement for young people started by an Englishman, Lieutenant General Sir Robert S.S. Baden-Powell (1857-1941) in 1907.

He gave boys outdoor skills which he had illustrated well in his book explaining scouting, tracking and map-making skills.

The movement's goals include encouraging good character, loyalty to God and country, service to other people and physical and mental fitness. "Be Prepared" is the slogan. The movement had about 13 million members in 115 nations in 1982. The World Scouts Bureau is in Geneva, Switzerland.

A similar movement for girls—the Girl Guide Movement—was founded by Baden-Powell and his sister Agnes in 1910.

Non-Aligned Movement (NAM) is a group of 108 countries, mostly developing. The Principles of non-alignment were defined in the Bandung (Indonesia) Declaration of 1955 and reiterated in the Brioni (Yugoslavia) Declaration of 1956 by Jawaharlal Nehru, Josip Broz Tito, and Gamel Abdil Nasser. The first Non-aligned Conference was held at Belgrade in 1961 in which 25 countries participated. The basic thrust of the movement is in favour of peace, disarmament, development, independence, eradication of poverty and illiteracy.

Chairman: Gen. Suharto (Indonesia).

South Asian Association for Regional Co-

operation (SAARC) comprises India, Maldives, Pakistan, Bangladesh, Sri Lanka, Bhutan and Nepal. It was launched following the Dacca Summit in early December 1985. The second Summit was held in Bangalore in 1986, the third in Kathmandu in 1987, the fourth in Islamabad, Pakistan in 1989 and the fifth in Male, Maldives in 1990.

Chairperson: Begam Khaleeda Zia (Bangladesh)

Secretary-General: Yadav Kanta Silwal (Nepal)

Headquarters: Kathmandu, Nepal.

The World Council of Churches (WCC) was formally constituted on 23rd Aug. 1948, Amsterdam, by an assembly representing 11 Churches from 44 countries. By 1989 the member Churches numbered over 300, from more than 100 countries.

The World Council was founded by the coming together of several diverse Christian movements. On 13th May, 1938 at Utrecht a provisional committee was appointed to prepare the formation of a World Council of Churches. It was under the chairmanship of William Temple, then Archbishop of York.

Presidents: Dr. Marga Buhrig (Switzerland), Most Rev. W. P. K. Makhulu (Botswana), Dame Nita Barrow (Barbados), Bishop Johannes Hemmrich (German Democratic Republic), Dr. Lois Wilby (Canada), Metropolitan Paulos Mar Gregorios (India), Patriarch Ignatios IV (Syria).

General Secretary: Konrad Raiser (Germany)

Office: PO Box 2100, 150 route de Ferrière, 1211 Geneva 2, Switzerland.

World Trade Organisation (WTO) replaced GATT in January 1995. GATT was negotiated in 1947 and came into force on 1 Jan., 1948. There were 116 nations under GATT in 1993.

Headquarters: Centre William Rappard, rue de Lausanne, 1211 Geneva 21, Switzerland.

Chief: Renato Ruggiero (Italy)

World Intellectual Property Organisation (WIPO) The Convention establishing WIPO was signed at Stockholm in 1967 by 51 countries and came into force in April 1970. In Dec. 1970, WIPO became a specialized agency of the United Nations.

Headquarters: 34, Chemin des Colombes, 1211 Geneva 20, Switzerland.

Director-General: Arpad Bogsch (USA).

International Fund for Agricultural Development (IFAD) The establishment of IFAD was one of the major actions proposed by the World Food Conference. The agreement for IFAD came into force on 30 Nov., 1977 following the attainment of initial pledges of \$1,000 million. The agency began its operations the following month.

Headquarters: 107 Via del Serafico, 00187 Rome, Italy.

President: Idriss Jazairy (Algeria).

PART THREE



GENERAL **KNOWLEDGE**

Current Affairs

China: A Look at the Last Decade and a Half

China's economic take-off which began with the implementation of Deng Xiaoping's 1978-79 reform plan, has led, in the short span of 16 years to an economic boom which is unique in contemporary history. The consequences of China's economic growth for China's neighbourhood in South, South-East Asia are profound and the politics of Asia has been reshaped.

Two main economic trends are discernible in the post-Cold War period which affect contemporary geopolitics. One is the collapse of the erstwhile communist economies of East Europe and the second, which is diametrically on the opposite side of the spectrum, is the continuing dynamism of many of the Asian economies. The evident contrast between the two, although both trends have evolved over the decades, has led western economists to characterise the economic growth of Asia as a 'miracle'. What is undeniable is that the process which was initiated in China, sixteen years ago, has contributed in great measure to this 'miracle'.

Ideology and Pragmatism

Although Chinese spokesmen constantly aver that China is following the path of "socialism with Chinese characteristics", the Chinese -- though not consciously perhaps -- have followed a route which has been taken by other rapidly growing economies of East Asia. This route consisted of subordination of ideology to economic pragmatism and of politics to economics. It involved acceptance of the role of foreign corporations and technology over a wide area and adapting to an increasingly market oriented economy. It also meant encouragement of domestic competition, even in a country like China, albeit hesitant in the initial years of reform and giving China as a whole an

increasingly outward looking economic and social posture. Other policies included subordination of geopolitics to economic growth, a reduced military budget in the initial year of reform and an overall reliance, in the post Vietnam war situation on the Western World and Japan which would be friendly and supportive of the reform process.

What makes China unique however, is that all this was propelled under a system dominated by the Chinese Communist Party which had at its helm leaders who had managed a command autarkic economy for three decades before the reforms of the eighties. Within this framework economics was given priority over politics: coastal areas were given the initiative over the interior (including Beijing), central control was loosened over the province, and state enterprise and the locus and sectoral thrust of economic activity and above all, over the individual. The exposure of much of China to the outside world has brought in a measure of a more cosmopolitan culture particularly in the coastal areas and in many of the major cities -- a great contrast to anyone who has been in China during the sixties till the early eighties can attest.

The period from the early eighties to the present has also led to close economic and social interlinkages across China's borders. The closest linkages are with Hong Kong (which will politically integrate with China in 1997) and with Taiwan (which continues with its stubborn political separateness). However other significant linkages have either developed or are in the process of developing which tie-up parts of China with Japan, the Republic of Korea (South Korea), Russia, Central Asian States, Singapore, Thailand, Myanmar and could possibly include Vietnam. These linkages have obvious implications for a new pattern of political and security relationships. Thus at least since the eighties

China has skilfully adapted to the geo-political situation across her immediate borders for the sake of economic development of China as a whole. A closer examination of this process has some valuable lessons for India.

In the case of Southern China, the process of economic integration is multi-faceted and almost complete, where full advantage was taken of the numerous links which proximate Hong Kong and Taiwan could provide. The decision to fully integrate was consciously taken given the reality of Hong Kong reverting in 1997. In the case of Taiwan, the Mainland decision for the economic involvement of Taiwan was an investment in the hope of realising eventually a typically 'Chinese' style reunification. This however is by no means to be achieved easily. Of course, it is far too early to speak of the achievement of similar integration with China's neighbours in the north, north-west, south-west and south-east. Existence of historical animosities and suspicions, disparity in rates of development, sensitivities surrounding possibilities of ethnic assertiveness, geographical and communication shortcomings and a variety of other factors would naturally affect the pace and quality of the growth of China's trans-border linkages with neighbours in these areas. What can be seen however and affirmed in practice is that firm political decisions have been taken by Chinese leaders and their counterparts in China's neighbourhood to open wide to possibilities of various types of economic cooperation, and active physical preparations are being made through infrastructure developments in communications and other fields to propel the process of beneficial economic inter-dependence as rapidly as circumstances permit. As in the case of China's domestic development, ideology and sometimes political differences have given way to pragmatism, in an attempt to achieve what is feasible and realistic.

A paradox

Contemporary Asian history is the witness to a strange paradox: those who forgo military ambitions gain in prosperity and power. This has been true of Japan,

South Korea, Thailand and now China. By cutting the burden of the military on the economy, by reducing other forms of geopolitical entanglement, the country has focused resources on economic development. The result, again paradoxically, is not to weaken China but to strengthen it. Economic growth has been so fast that even if military expenditure just grows proportionately with the economy, a formidable power can be created within a generation. In the meantime national cohesion, international respect and influence are also raised. For long China has been a nuclear power, with moderately sophisticated warheads and delivery systems. Its military has the ability to project force overseas. Short-term political restraint and rapid economic growth are now leading to long-term power.

China's economic success has had a subtle effect on the morale, identity and direction of overseas Chinese communities in Singapore, Malaysia, Indonesia, Thailand, USA and elsewhere. There is an exhilaration felt in these communities in China's economic performance and is having a palpable impact as overseas Chinese communities visit ancient home villages, invest there, build schools, universities and hospitals, engage in big infrastructural projects and some of whom consult with senior Chinese leaders and planners.



Pudong waterfront, Shanghai

The Chinese stake in economic growth has facilitated stability in relations between China and her South-East Asian neighbours and is one of the great political events of the last decade of this century. Within countries, economic growth has knitted communities together and between them there is the acknowledgment that the way to prosperity lies in collaboration between states.

As China followed the Asian pattern of growth, Beijing made peace with all its neighbours. As against the spread of revolutionary fervour, China embarked on a conservative policy of getting along with its neighbours. In the course of improving its relations with ASEAN countries, and specially while normalising diplomatic relations with Indonesia, China made a series of specific promises not to tamper in the affairs of its neighbours and to promote positive economic and political ties. Realising that for some ASEAN countries, continuing US military presence was seen as a guarantee against trans-border military incursions, the Chinese let it be known in private diplomatic conversations that they would not object to this as indeed the lack of public rhetoric on the subject would show. Vietnam went into Cambodia to oust the Pol-Pot regime, China made common cause with Thailand and other ASEAN states. As prospects for peace drew near in 1991, China gave assurances of lessened military support to the Khmer Rouge faction. With other erstwhile ideological foes like South Korea, beginning with withdrawing support to North Korea in its confrontation with South Korea, China conducted first an economic and then diplomatic accommodation with South Korea in 1992. In a manner of speaking China's volte face in North Korea was an ultimate symbol of the abandonment of ideology in foreign policy. As for its territorial claims in the South China Seas, China is pursuing low-key tactics and running no major risks. South East Asian statesmen express the confidence that China is not going to risk its relations with South-East Asian neighbours over the issue of Paracel and Spratly Islands.

By the late eighties and early nineties domestic developments in China following the Tiananmen demonstration and their violent suppression leading to a period of a USA-led sanctions reforms within China, affected Chinese foreign policy vis a vis the developed countries. It was not until 1994 that the embargo on China was lifted and technology flows became normalised.

The early nineties witnessed three developments in the international sphere which also caused the Chinese to reassess foreign and security policies. One was the downfall of communism almost everywhere. This graphically illustrated the true relationship between

modernisation and revolution in the 20th century: revolution now meant anti-socialist economics, and pro-democracy and marketisation, and economic development was now a prerequisite to political modernisation, not the reverse. The end of global communism impacted directly upon Chinese foreign policy. The Party realised that its time in power would be short unless it reconstructed itself, that marketisation was its only economic alternative, that the influence of personality on politics would have to be limited, that ideology would have to be replaced by a mixture of nationalism and traditionalism. Also that foreign policy would have to include the inputs of new groups in Chinese society and thus that China would not always speak with one voice, that China would have to repair its relations with the market democracies and then keep in their good stead for a considerable period. Further that the door to investment, trade, and technology transfer would have to be kept open wide enough to admit foreign cultural and political influences. For all these reasons, a long-term centrist foreign policy would have to be maintained. This is also the background to Deng Xiaoping's visit to South China in 1992 when he called for a speed-up in opening up of the Chinese economy.

End of Cold War

Another was the definitive end of the Cold War, signified not only by the anti-communist revolutions in East Europe and the subsequent withdrawal of Russian forces from that region but also by the downfall of communism in the Soviet Union itself and the consequent breakup of that country. The strategic triangle-based international system was replaced by a loose arrangement among five power centres -- North America, Greater Europe, Russia, China and Japan with very different characteristics: partial substitution of formal alliances by an ad hoc Concert-of Europe-like arrangement; power centered in the Group of Seven (plus One Russia), with China on the outside; dominance of marketisation, democratisation, interdependence, and near-universal attention to domestic problems; technology as the most important driving force for change; and the rise in prominence of global issues. Together, they meant that China would have to cooperate in loosely-arranged international arrangements if it wished to exert its influence abroad. Economics would replace security as Beijing's central concern for the foreseeable future. And its Asian and global power and status would derive more from its rate and level of GNP, per capita income and technological prowess and much less from

military power, population, extent of land, and quantity of production.

The Gulf War was the third systemic change. Not only did it symbolize the replacement of one international era with another. It demonstrated the integral power of the market democracies and reinforced China's need to re-establish a foreign policy derived from reform and the open door. It also showed that a high-technology based military was China's only military option and that construction of such a force would take considerable time, effort and domestic change. If so, China would have to take the low road in foreign policy, compromising with former or potential enemies, and biding its time (unless unavoidable, direct threats intervened) until its relative power allowed it to achieve its expanded list of international goals. It would be best, therefore to settle disputes with its Asian neighbours, not engender new disputes or exacerbate old ones, and place as much emphasis as possible on acquiring the new elements of power as quickly as possible through continuing the prior emphasis on rapid economic development. That meant, in addition, coming to terms (if possible) with the United States or at least not so ruining relations with Washington as to jeopardize Beijing's fundamental economic and security goals. Moreover, China would have to hold constant, or improve if possible, its relations with the other major Asian powers -- Japan, Russia and India. It meant, further, doing what was within China's capability to cool down and perhaps help solve a range of regional security problems or at least not deliberately exacerbate them. These included the North Korean nuclear weapons question and associated Korean Peninsular matters, the Spratly Islands issue, reversion of Hong Kong, the possibility of Burmese implosion/explosion, the Kashmir question, and above all relations with Taiwan. Finally, it meant moving toward, if not enthusiastically embracing, the notion that China should work together with other relevant Asian powers to construct a new regional and trans-Pacific political, economic and security order



A boy selling cloth in a market

through cooperative invention of new institutions in these three arenas.

Military modernisation

Rapid economic growth and a rising GDP have enabled China to spend more on its military modernisation, bringing about significant increments in its power thus raising a debate in China's neighbourhood and in the West about how the Chinese would in future deal with a force projection capability. The answer to this question must keep in perspective several factors. China cannot afford to break with the USA which still plays a predominant role in the Asian security scenario and in its economy. Beijing cannot afford to be perceived by its Asian neighbours as threatening, but they band together and clamour for American leadership. Even a single Chinese foray against one of them would be regarded as proof of a China threat. Together with Europe and USA these states, particularly in South East and East Asia are the sources of markets, technology and China without which China's growth would nearly cease.

Experts evaluate that full military modernisation dependent on economic growth would itself take China two decades to accomplish. China needs to balance a desire to expand military influence commensurate with its new economic power and international position and the need to retain markets, sources of supply and international good-will. Thus there is a gap

between the country's military capabilities and intentions on the one hand, and its military policies and involvement, on the other.

Account must be taken also of a variety of domestic factors. China, like any other large developing society, has its share of problems in spite of its rapid and impressive growth rate. Inflation, too rapid urbanization, loose controls on population growth, maldistribution of social product, a slow-down in agricultural growth and a speed-up of that in the cities worsening rural-urban differences, lack of macro-tools of indirect control of the economy, massive infrastructure problems, rising crime and corruption and speculation, a huge 'floating' population are some of the ills society faces and Deng's successors will have their hands full in dealing with these problems.

India-China relations

Turning to the development of India-China relations, by the early eighties Chinese spokesmen and commentators on foreign affairs were referring to the need for China to pursue a new "omni directorial" foreign policy. The ingredients of this policy, to march alongside with the initial economic reforms in the rural areas and in the Special Electronic Zones, were to seek foreign capital, investments and technologies from those who had it to fuel China's economic growth. Rapid enhancement of foreign trade to pay for imports of capital goods was part of this approach to "open up" China to outside world. Secondly, the policy involved the emergence of friendly and stable relationships with all of China's neighbours, some of whom to the south of China were beginning to achieve impressive economic growth. It was China's intention to secure a stable and peaceful external environment in which to pursue its own internal economic reform policies. Thirdly the policy included an active effort at repairing relations with the rest with whom China had major disputes.

The initiative to invite former Indian Prime Minister Rajiv Gandhi to visit China in 1988 was consistent with two of these three policy objectives. In India the joining of this initiative by accepting the invitation to visit China was perhaps the outstanding foreign policy achievement of the former Prime Minister. The first by an

Indian Prime Minister after a gap of more than three decades, the visit made a political impact which is enduring and has led to a very large measure of strategic stability in the India-China relationship. Prior to then, there was acrimony and armed conflict in 1962, ideological hostility during the rest of the sixties lasting into the mid-seventies and mutual indifference as both countries were preoccupied with domestic developments, until the mid-eighties.

At this point the leadership in both countries realised that it was high time to improve matters between India and China. This was prompted by the beginnings of the end of the Cold War, clear signs that major changes would take place in the old order after Gorbachev's initiatives in the former Soviet Union. It also coincided with the assumption of office by a young Indian Prime Minister who was two generations removed from the time when both countries drifted into conflict.

The main tangible result of the visit was a dramatic change in the atmosphere in the conduct of India's relations with China. It also signalled that India was no longer going to base a China-policy on past antagonism and hurt feeling and that India was mature enough to look to the future, free from stereotyped images of a China which belonged to the past.

Since 1988 reasoned dialogue has become the order of the day: evident in a determination to tackle territorial and other questions without linking their solution to the creation of more flexible mechanisms for the solution of problems -- military and territorial -- and for the promotion of trade and mutual investments. Discussions leading to similar approaches on global issues, are other features of a normalised pattern of relations. These include trade and environment talks, exchanges of visits at high and highest government levels and of scientists, academicians and businessmen, and an impressive increase in bilateral trade. In the years 1990-91 Indian exports to China amounted to Rs. 327 million and imports from China stood at Rs. 556 million. In 1994-95 (April to February), Indian exports to China reached Rs. 6811.8 millions and imports from China touched Rs. 21,926.8 million. Although current two-ways trade amounts to less than US 1 billion dollars, a modest figure given the size of both countries, the growth over a five year period from 1990 is impressive. (See tables)

Trade Statistics (in Rs.million)

Year	Exports to China	Imports from China
1990-91	327	556
1991-92	1188	511
1992-93	3976	374
1993-94 (April-Feb)	8017.3	8284.8
1994-95 (April-Feb)	6811.8	21926.8

India-China Trade in Select Commodities (Value in Rs. million)

India's Import from China	1992-93	1993-94 (April-Feb)	1994-95 (April-Feb)
Organic Chemicals	670.65	1592.52	3200.16
Inorganic Chemicals	113.03	301.91	562.16
Medical & Pharmaceutical Products	162.06	420.60	987.40
Paper Board & Manufactures	31.50	35.39	52.60
Primary Steel, Pig Iron based Products	52.14	66.74	223.07
Transport Equipment	6.65	41.93	109.56
Project Goods	56.73	196.69	789.30
India's Export to China	1992-93	1993-94 (April-Feb)	1994-95 (April-Feb)
Oil Meals	77.32	75.09	159.68
Iron Ore	1114.18	1268.85	1608.28
Leather & Manufactures	585.48	103.74	399.99
Inorganic/Organic Agro Chemicals	73.91	161.57	171.56
Manufactures of Metals	292.64	937.89	79.65
Machine Tools	1.04	1.18	2.30
Machinery & Instruments	48.10	25.10	108.16
Transport Equipment	7.25	3.89	13.02
Iron & Steel Bar/Rod etc.	1293.02	875.94	327.20
Primary & Semi-Finished Iron Steel	107.01	3141.78	721.36

Narasimha Rao's Visit

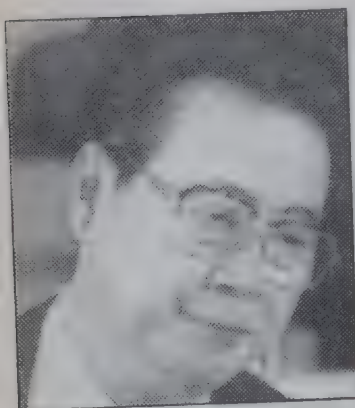
A very significant agreement was reached in 1993 when a second visit (within 4 years) was made by the Indian Prime Minister, N arasimha Rao, to China. This related to the maintenance of Border Peace and Tranquillity pending an eventual solution of the territorial question. This agreement envisages that experts from both sides define a "Line of Actual Control" where there are differences between the two sides as to its precise location in a few areas. It also seeks to improve field-level communications and contacts between the locally based commanders of the two sides in a few agreed locations. The experts' group would also exchange information which has a bearing on the maintenance of peace and stability all along the long border of over 4000 kms. and recommend feasible mutual troop withdrawals and other confidence-building measures such as prevention of aerial intrusions. The agreement, if fully implemented, would mark a major step in the direction of having a mutually agreed Line of Actual Control thus marking the precise areas upto which each side can send military patrols and take mutually transparent measures for their reasonable defence. Thus the politics-military conditions for Indian and Chinese forces to discharge their responsibilities in areas which are very sensitive to each side, in a non-provocative and in a non-violent mode. A solution to the boundary question depends on the evolution of the necessary political will and

consensus in each country, in order to make the territorial concessions necessary to bring about a solution to the boundary questions.

If each of the countries has clearly adopted more benign perceptions of the other thus leading to a degree of poise, in the bilateral political relationship, what are the chances of old issues reviving which might affect the degree of stability now in evidence? Is there an underlying geo-political competition between the two giants which will manifest itself in the future once the rather fully respective domestic economic agendas are seen as completed?

The old issues would include China's close politico-military relationship with Pakistan which has led to the flow of assistance in conventional and non-conventional military fields to that country. This contrasts with India's poor relationship with Pakistan, evident in three areas: the enduring Kashmir question; China's continuing difficulties with Tibet and the Dalai Lama's increasing international stature, based as he is in India, which has no hesitation in extending humanitarian hospitality to His Holiness and more than a hundred thousand of his followers; past suspicions of interference in each other's domestic affairs and China's increasing nuclear armed power and capacity to deliver.

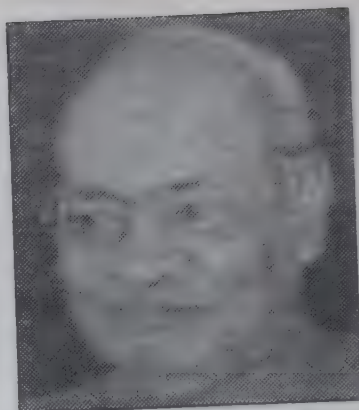
To take each of these, the Indian leadership never demanded it as a sine qua non of rapprochement with China that there should be a dilution of Sino-Pakistan friendship. Once it became evident that China of the eighties and



Li Peng

"The foundation has been laid for a dialogue on bilateral and international issues, particularly those relating to peace and development."

1993



P. V. Narasimha Rao

"The agreement on peace along the LAC gives both the opportunity to move on to substantive negotiations on border issue."

thereafter had no vested interest in an Indo-Pakistan conflict and indeed was privately and publicly advising Pakistan to resolve all outstanding issues with India through direct bilateral contacts, the Indian leadership persisted with the resolve to improve contacts and communications with China. On the question of Kashmir, the Chinese position is close to the position adopted by many leading Western nations that India and Pakistan need to resolve the issue through more direct talks between the two Governments. The rise of fundamentalism in Afghanistan following the withdrawal of former Soviet Union's troops, the break-up of the Soviet Union and the emergence of many ethnic or sub-national movements since the end of the Cold War, have cumulatively sensitised China to the dangers of the disintegration of large societies.

Mutual Interests

There are clear mutual interests between India and China to reinforce and strengthen the Indian constitutional principle of secularism and the complete separation of religion and politics. Neither the Tibet question in the case of China nor the Kashmir situation in the case of India (where there prevails a plural society and a multi-party democracy in contrast to China's system) has come in the way of the search for improvements in relations across a wide spectrum. The Tiananmen incidents of 1989 did not impede the process, showing that, by and large

India was in step with the broader Asian tradition of non-interference in domestic patterns of governance.

As for nuclear and missile issues, differences with China on its external assistance to Pakistan in the field do not appear to obstruct the potential for growth of relations in various fields of interest to India and China. China's active encouragement for the success of the deliberations of the South Asian Association for Regional Co-operation (SAARC) is a signal to all of India's neighbours that for China, each country's differences with India should not impede efforts at

cooperative endeavours for the greater economic benefit of the group as a whole.

Economic fields

It now remains for the political goodwill generated in recent years to be translated into more significant relations in the economic fields. Given the size of the two countries, the path of economic growth which both have embarked upon, and the policies of deregulation and liberalisation adopted by both countries, there is a clear recognition that the potential for vastly increasing trade levels and mutual investments has barely been tapped. Two-way trade volume in 1994 (figures for Jan-Dec. '94) almost reached US dollars 900 million. While Indian exports to China fell almost 23%, Indian imports from China increased by 121%. Overall trade volume in 1994 when compared to 1993 went up by some 32%. Considering that a normalised pattern of overall relations has only recently set in, there still remains the formidable task of removing several infrastructural bottlenecks to be removed or to put it in place. Direct shipping arrangements between India and China are inadequate, there is no banking presence in either country which can finance trade in any significant manner, no direct connections exist between the two countries although there is an air agreement and links between business associations or chambers of commerce are weak. Difficulties are exacerbated by the communication difficulties, la

guage problems, paucity of knowledge in each country of the business opportunities available in the other. Exchanges in the field of science and technology are confined to the Government levels. While areas for interactions in research fields have been identified, the translation of research into commercial possibilities require infrastructure which is not in place.

The common perception of China being a competitor of India in world markets has hitherto acted as a stumbling block to a more intense exploration by businessmen of both sides of the possibilities. This psychological barrier is gradually being removed in the wake of economic

reforms in India and the need to achieve competitiveness in exports in the global market is increasingly felt in India. The Hong Kong connection to China is being increasingly exploited.

India and China will continue to aim at western and US markets but both feel uncertainty of the possibility of difficult conditions being imposed on their products. This also provides the rationale for a closer initiation between India and China and explains the trend of looking at each other closely has clearly started.

■ **C.V.Ranganathan**

Formerly India's Ambassador in China

Economic miracles in Vietnam

President Bill Clinton of the USA, a college dissenter during the height of hostilities in Vietnam in the late 60's lifted Washington's 30-year-old trade embargo against Vietnam in February 1994, marking a new chapter of good-faith and comradeship between the two nations which waged war for nearly a decade. It was the beginning of the resurgence of the war-torn Vietnam and the apparent thirst and thrust in the country for integration with the regional and international economy have propelled this communist state to a new horizon.

Normalisation of relations with the US and its entry in to the Association of South-East Asian Nations (ASEAN) have brought Vietnam to the centre stage of high voltage business activities. These two major developments, within 10 days, opened up new opportunities for Vietnam. The days of isolation and rivalry are over and Hanoi today is waiting to step up ties and trade with its immediate neighbours and the U.S., with whom the war, two decades ago had led to the Cold War.

Twenty years ago, the tanks of the communist North were smashing through the gates of the Presidential palace in Saigon and 'liberating' the south. Today the South, not the North, is Vietnam's, economic engine. Market economics is being embraced with a passion that would turn most communists red.

It could be ironical that Vietnam joined ASEAN, the association of South-east Asian nations, set up during the Cold War years of the late 1960s as a balance to regional communism, now involving some of the most dynamic economies on earth. This giant regional economic treaty of South East Asia was founded by Singapore, Brunei, Thailand, Indonesia, Philippines and Malaysia. Now Vietnam has become the seventh member despite its resolve not to shed the communist label.

To integrate fully with ASEAN. Vietnam has to fall in line with the procedures and tariffs prevalent in the region. It has been given time till 2006 AD to achieve this integration. A whole range of reforms and restructuring in the customs, immigration, banking and financial services have to be pushed through by the communist regime so that it could finally form part of the ASEAN Free Trade Area, when it should come into force in 2003 AD.

Restoration of normal diplomatic relations between the U.S and Vietnam in July last year was another significant development marking the resurgence of a new, vibrant and normal Vietnam. This followed the historic visit of US Secretary of State Warren M. Christopher to Hanoi which was reciprocated by President Le Duc Anh's visit to the U.S., later in the year.

Already the grisly memories of the past-the B-52 bombers, the My Lai carnage, the havoc inflicted by the defoliant Agent Orange have dimmed in Hanoi and Ho Chi Minh city, thanks to the bustle of foreign investors, Mercedes cars and Honda motorbikes. The Vietnamese perestroika appears to have convinced global investors that red-tape and social unrest notwithstanding, this nation of 70 million literate and industrious people has enough potential to 'transform into another 'Asian tiger'.

The presence in Vietnam of Corporate America - Caterpillar Inc., Coca-cola, General Electric and City Bank has helped the U.S climb six places on the foreign investment chart to quadruple the amount invested to \$ 78 billions. More than 300 American companies have already opened offices in Vietnam since the trade embargo was lifted in early 1994.

Infrastructure improvement is Hanoi's top priority as it seeks to achieve economic growth of eight to 10% a year to the turn of the century

and beyond. Of the \$ 48 billion to \$50 billion Vietnam is seeking in investment by 2000, half of it from foreign sources, physical and social infrastructure will eat up 50% of spending and industry and power 38%.

With these statistics in mind, Premier Vo Van Kiet's government in June last year appointed two U.S. firms to supervise urgent upgrading of its main north-south highway and invited global tenders for a second 600-megawatt gas turbine power plant at Phu-My in the southern province of Ba-Ria-Vung Tan. A first 600-megawatt gas turbine station, Vietnam's biggest thermal power plant, largely funded by Japanese soft loans, is already under construction.

The moves indicated the government was getting to grips with the upgrading of crumbling or inadequate infrastructure, a major impediment to its ambitious development plans. Improving the potholed, narrow highway 1A, which runs the entire length of Vietnam, is one of the most vital projects. The World Bank has given Vietnam a credit of \$ 158.5 million for the work. U.S. firms Berger International and Leuw Carther international had been chosen to supervise work on the two stretches to be upgraded with the World Bank money, totalling 435 km. (270 miles) from Hanoi to Vinh in the north and Ho Chi Minh city to Can Tho in the south.

Speculations are already on in both Vietnam and the U.S. about the likelihood of Clinton Administration granting preferential trading status to Hanoi. Under the terms of a 1974 law that governs U.S. commerce with Vietnam, a trade agreement must be concluded between the two countries before the U.S. can grant most-favoured-nation (M.F.N.) status to Vietnam, a key step in normalisation that would eliminate crushing tariffs U.S. companies face, when they export goods to Vietnam. But granting Vietnam the M.F.N. status is likely to face a battle in the U.S. congress, where bitter memories linger of the Vietnam War and concern about 2,202 American soldiers still considered missing in action. Those Republican senators who op-

posed diplomatic recognition would also oppose M.F.N. status being granted to the former enemy.

Hanoi's thrust in the past few years has been to make the state enterprises - around 1,250 of them which control about 40% of the GDP and provide employment to 90% of the qualified man power in the country - more viable and even profitable. A standing example of this pragmatic approach is the defence service. It was at one stage funded by the former Soviet Union and it grew to a large size. With the fall of the Soviet empire, Hanoi took a conscious decision not to disband its army and retrench thousands of youth, but to make them a self supporting organisation. Through a series of steps, the army was involved in industrial production related to defence and the soldiers were redeployed to these units. The defence infrastructure and facilities, such as caves, tunnels and the helicopters have been put to use in the emerging tourism sector.

When it comes to investments, Taiwan has taken the lead in setting up as many as 1790 joint ventures in Vietnam. Hong Kong and Singapore follow close behind. Now Thailand wants to be sort of funnel for investments and a hub for the Indo-China region, comprising Vietnam, Cambodia and Laos. It has set up a \$ 300 million fund for Indo-China and is scouting for projects.

The immediate challenge before the Hanoi regime now is take the reforms forward at a convenient pace with out giving way for overheating of the economy and without internal contractions to its communist ideology. Having joined ASEAN, its South-East Asian neighbours are not going to let communism interfere with trade and investment for too long.

Outside so many conflicting signals from the socialist infrastructure, the Vietnamese economy is doing well, in the sense that it grew by 8.8% of the GDP in 1994 and an average 7.9% growth from 1991 to 1994 period, which was unmatched even by many better-placed economies of the third world, in such a short period.

Marxists Thrown out in Nepal

The first ever Marxist-Communist Government in Nepal headed by veteran Marxist Premier Manmohan Adhikari was thrown out of power in September last year through an opposition-sponsored no-confidence motion. The motion moved by the Nepali Congress Rashtriya Prajatantra Party combine and supported by the Sadbhavana Party and the majority of indepen-

dents, was carried by 107 to 88 in the parliament having an effective strength of 202.

The fall of Adhikari, as expected, brought back the Nepali Congress to power under the leadership of Sher Bahadur Deuba, a protégé of the supreme leader of the Nepali Congress and former Prime Minister Krishna Prasad Bhattarai. As leader of the Opposition, Deuba himself ha-

moved the no-confidence motion which effected change of guards in the young democracy of the Himalayan kingdom.

The Pratinidhi Sabha (Parliament) had earlier been dissolved by king Birendra Bikram Shah on June 12, 1995 on advice by the Prime Minister after his political allies withdrew support, but was later reinstated by an order of the Supreme Court.

The dissolution of Parliament was the outcome of prevailing upon the king by Nepali Congress and its allies to convene a special session of Parliament to consider a vote on no-confidence motion against the minority Government, citing the ruling Community Party of Nepal's (United Marxist Leninist) CPN (UML)-inability to curb inflation. They also brought a general charge of misuse of power.

The king obliged and the CPN (UML), not wishing to face the censure motion, sought dissolution of the Pratinidhi Sabha. Again the king obliged, only to be intervened by the Supreme Court to nullify the royal proclamation on August 28. This finally gave the Opposition the chance to successfully move the motion.

The constitution bench, in an eight-to-three judgement, had ruled that Adhikari's recommendation to dissolve Parliament was unconstitutional and asked that a special session be called



Deuba: Overthrowing Marxism

to take a vote in the no-confidence motion, suggesting also that in case of an adverse vote, possibilities of an alternative government be explored.

The minority CPN (UML) Government had only 88-members in the 205 seat Pratinidhi Sabha, as against the non-left opposition's strength of 107. Nepali Congress alone had 85 members, the Rashtriya Prajatantra Party 20 and the Nepal Sadbhavana Party two.

Political upheavals since 1990 have been particularly strenuous, but given that the process of democ-

ocracy is a recent manifestation in Nepal, the tiny Himalayan kingdom has quite remarkably stayed its course. The country has already faced two elections in a span of four-and-a-half years. Nepali voters might have heaved a sigh of relief as the 1995 political crisis passed off peacefully without forcing another election upon them which could have been very very taxing in the context on an economy in doldrums.



Manmohan Adhikari: A hot seat it was!

Ex-President Roh jailed in S. Korea

Former South Korean President and the moving spirit behind Korea's economic resurgence in the late 80's Roh Tae-Woo was arrested and jailed in November last year on very serious charges of bribery.

President Roh had admitted amassing a \$650 million (Rs. 2252.25 crores) political slush fund during his 1988-1993 term in office. He is the first South Korean President punished for mis-

deeds in office. He faces 10 years to life in prison, if convicted.

Although Roh had admitted taking money from business houses, he claimed that it was all free donations. But prosecutors maintained that they have very strong evidences of bribery to grill the ex-president. Roh is also suspected of having diverted some of his ill-gotten money to secret Swiss bank accounts. Prime Minister Lee

Hong-Koo has, formally requested the Swiss government help in further investigations.

During the questioning of the Ex-President which took nearly 20 hours on November 17 last year, chief prosecution investigator Ahn Kang-Min said the ex-president was found to have used \$42 million from his slush fund to help some of his relatives buy buildings.

The scandal broke out on October 19, when an opposition legislator disclosed one of Roh's secret bank accounts. Under pressure Roh was forced to admit that he had collected \$650 million from businesses during his stay in office and left \$230 million in secret bank accounts. There have been strong allegations that some of his money went to politicians, both government and opposition.

Top opposition leader Kim Dae-Jung had admitted that he received \$2.5 million from President Roh for his unsuccessful 1992 presidential campaign. He also claimed that Roh funneled considerably more money into President Kim Young-Sam's successful 1992 campaign, a charge President Kim promptly denied.

Since taking office in early 1993 President Kim, the first president in more than 30 years without a military background, has carried out wide reforms aimed at rooting out corruption which grew hand-in-hand with economic prosperity in the liberated southern half of Korea.

Chun, Roh duo in jail

In less than three weeks of the arrest of Roh Tae-Woo, another former President of South Korea Chun Doo Hwan also was jailed in the first week of December last year on charges of plotting a military coup 15 years ago which brought him to power.

Chun Doo Hwan who became South Korea's military dictator after the infamous Kwangju massacre of 1980 was taken in after earlier refusing to obey a summons from prosecutors seeking to question him about a 1979 coup d'état where he took over the Army and the Kwangju massacre that followed in the southern city of that name.

Chun was President from 1980 to 1988 and his arrest came after the present head of state Kim Young Sam called for a nationwide attempt



Roh Tae-Woo: Jailed for bribery



Chun Doo Hwan: Plotter of a coup

to correct historical wrongs.

Roh Tae Woo, as a General in command of an Army Formation before becoming President from 1988 to 1993, is alleged to have assisted Chun Doo Hwan during the 1979 Coup and the subsequent Kwangju massacre. Chun too had admitted obtaining funds into a slush account but subsequently returned the money and with his wife did penance at a Buddhist monastery for nearly two years.

The Kwangju massacre in 1980 was an attempt by the military to silence people's uprising against a likely martial rule after the death of President Park Chung Hi. Army men brought in from the barracks indiscriminately fired on the 1,00,000 demonstrators at the city of Kwangju, killing as many as 1000 people. The official figure however was put within 200.

The incumbent President Kim had went on hunger strike in protest against the carnage but later his opportunism prompted him in 1990 to merge his opposition party with the then dominant party established by Chun and later led by Roh. The present Democratic Liberal Party, a result of that merger, then nominated Kim as its leader for the 1992 elections which he won hands down.

Against this backdrop, now the efforts of President Kim to book his own corrupt predecessors are widely seen as an unproven attempt to deflect attention from his own misdeeds. The order of Kim to arrest the former heads of state came after much turmoil in the streets of Seoul - that he himself account for the wrongdoings of both Chun and Roh during their stay in power.

The only silverline amid all round turbulence and despair in Korea, is the consoling fact that Kim Young Sam is the first civilian leader of the country in more than 30 years, elected through democratic process.

SAPTA targets Free Trade Zone

The South Asian Preferential Trading Agreement (SAPTA), a new economic treaty of the SAARC nations which took shape during the seventh SAARC summit in Dhaka in April 1993, is making fast strides as an integrated transit system (ITS) for member nations to be introduced very soon, in 1996 positively.

An expert group study had suggested in last November, the establishment of the ITS for movement of goods across the territories of all SAARC member nations to give the much-needed momentum to expansion of intra regional trade in South Asia.

The study conducted by the Institute of Economic Growth (IEG) in New Delhi had recommended a regional transit net work with designated seaports, airports and roads in the member countries - India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan and Maldives.

The ITS is intended to liberalise border trade and strengthen bilateral trade relations through separate sets of trade concessions in the general framework of SAPTA. The SAARC committee on Economic Cooperation (CEC) which discussed the expert group study in November last, felt that a common regional transit treaty among all the SAARC countries would be necessary to expand intra-regional trade and also to result in substantial saving while transporting

goods and people across countries within the region.

Keeping in tune with the recommendations of the IEG, the SAARC countries at the CEC meeting decided to hold negotiations in the first quarter of 1996, aimed at lowering trade barriers including border tariff concessions.

The commerce secretary level CEC meeting also decided to constitute an inter governmental group of experts to bring out a comprehensive report on proposed transition of South Asia from a preferential trading area to a free trade zone with all tariff and non-tariff barriers totally eliminated.

The IEG study which concentrates mainly on two major areas of regional cooperation - promotion of international trade through preferential trading agreements and cooperation in other related areas such as payments and clearing arrangements, trade finance, settlement of commercial disputes, trade facilitation measures and transit facilities - can be a useful input for discussions on expansion of intra-regional trade in the SAARC region.

SAPTA, in the meantime became operational on December 7 last year. As per the first stage of regional trade agreement under SAPTA, the seven-member SAARC countries exchanged tariff concessions among them on 226 items.

Suu Kyi is free, peace is far

Myanmar (former Burma) is on the verge of a turbulent spell, despite the release of pro-democracy leader Aung San Suu Kyi by the military junta in July last year. The immediate crisis revolves around the withdrawal of Suu Kyi's opposition National League for Democracy (NLD) from the constitution making body.

NLD delegates pulled out of the National convention in November last year, during the fifth session of the convention, which was established in 1993 to draft a new constitution for Myanmar. The NLD had close to 100 members in the 700 member constitution body which was handpicked by the military leadership.

There were two main proposals in the draft framework already prepared by the National Convention that were not acceptable to the NLD and the pro-democracy groups. The first provides a "leading role" for the military in the political process and leadership for the country.

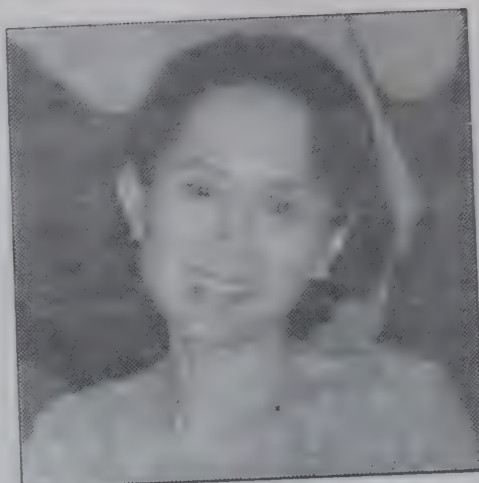
The second aims to disqualify persons with foreign connection (can be read as Suu Kyi, as her husband is a British academic) from seeking any political or elected office.

The ruling State Law and Order Restoration Council (SLORC) had promised that once a constitution is ready, election would be held on the basis of this document and a new Government elected by the people would be installed. The pull out of Suu Kyi's NLD from the National Convention has however undermined the grand design of the military for a 'democratic' Myanmar, and has pushed the NLD closer to a direct confrontation with the junta led by Gen. Than Shwe.

The winner of the 1991 Nobel Peace Prize, Suu Kyi was released from house arrest by the SLORC in July 1995 after her 2190 days of incarceration. She was placed under house arrest in 1988 and spent exactly six years confined to her family's deteriorating lake side

bungalow in Yangon. Her family-husband Dr. Michael Aris and two children - were kept away from her all these six years.

There was general feeling among political observers that the release of Suu Kyi was an eye wash with no real intention to loosening their grip on Myanmar. It was speculated that the release of Suu Kyi was a concealed and calculated move to woo foreign government and institutional investments.



Aung San Suu Kyi: Struggle to continue

It was a clever step by the 21 Generals who govern the country through the SLORC as more countries were now eyeing the Myanmar economy and the potential it offers for investment and trade. In the last week of November last year, Japan had announced the release of its 13 grant-in-aid instalments of the five billion yen to Myanmar.

Myanmar is gradually coming out of the long shadows of economic isolation as investments



Gen. Than Shew: Unrelenting General

are trickling down from ASEAN members like Thailand and Singapore also.

Will the foreign aids and investment offers embolden the SLORC to take on Suu Kyi's NLD which swept the polls in May 1990, is the crucial question for the year 1996. The pull out of NLD from the constitution convention could be another flash point to push Myanmar back again into a no-hope situation.

Rabin's death, a blow to peace

The assassination of Prime Minister Yitzhak Rabin (73), who was hailed as the messiah of peace, on November 4 in Tel Aviv last year during a peace rally inflicted a severe blow to the West Asian peace process initiated by the Israeli leader and the P.L.O Chairman Yasser Arafat in 1993.

Ever since the historic West Asia peace accord was signed in September 1993 at the White House lawns, the extremists on both sides were livid which made the road to peace indeed a tortuous one. To many Jewish settlers in the occupied territories, Rabin's promise of autonomy for the Palestinians in their area was an act of 'betrayal'. It was one of those fellow Jews - 28-year old Yigal Amir - who believed that by killing Rabin he was thwarting the peace process, finally got to him.

The young assassin who was caught redhanded was a resident of Herzlia town, north of Tel Aviv in the West Bank. A law student in Tel Aviv's Bar Ilan University Law School, Amir had strong ties with a right-wing Jewish extremist group Eyal, led by another Bar Ilan student Avishai Ravid.

Amir had been stalking the Israeli Premier for several months. His attempt to take a crack at Rabin in January last year had been failed after the prime minister cancelled a visit to the Holocaust memorial in Jerusalem following a suicide bombing. He bungled the second attempt, at the opening of a bridge in September. He was ejected from a rally after screaming that Rabin had abandoned the Jewish settlers in the West Bank. On November 4, the young Jewish hot-head coolly bided his time to slow down the peace process at least for the time being.

Rabin's brutal murder was the result of the growing divide among the Israelis since the beginning of the peace talks with the Palestinians. Ironically, it brought the nation together at least temporarily, to mourn Israel's or Sabra, or native-born Premier. The funeral in Jerusalem was attended by a throng of leaders from the West, and also from the Arab world with which Israel waged five bitter wars before Rabin decided "enough of blood and tears".

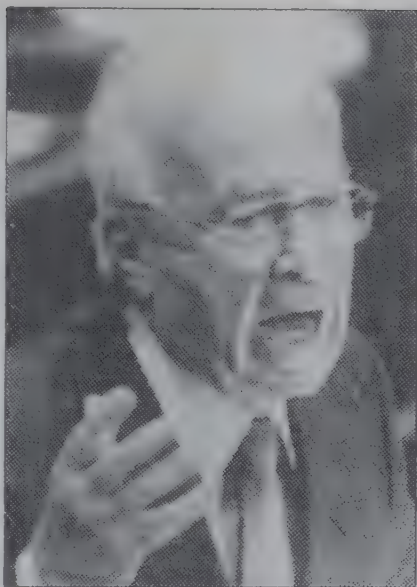
The touching tributes from world leaders at the funeral were testimony to the fact that three years Rabin had brought about a s

change in the politics of West Asia. Among the 80 odd world leaders who had converged on Jerusalem were King Hussein of Jordan and President Hosni Mubarak of Egypt. They had come to the disputed city, which the Palestinians claim as their capital, knowing full well that they might have to pay a political price for travelling to the city. There were official delegations from Oman and Qatar, too, though both countries have no ties with Israel.

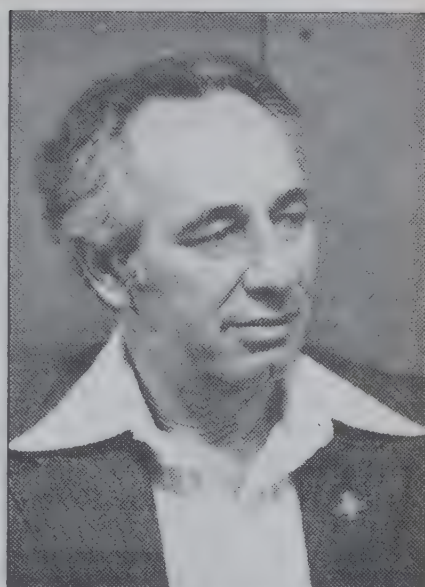
Amid the sorrow there was some hope that the peace process might gain in strength as a result of the assassination.

President Hafez al Assad of Syria, with whom Rabin had been trying - unsuccessfully - to initiate peace talks, condemned the murder. While Israel has initiated peace agreements with Egypt, Jordan and the PLO, its negotiations with Syria and Lebanon have made little headway. Syria wants Israel to return the strategic Golan Heights plateau which it captured in the 1967 war, before sitting down at the negotiations table.

The new Prime Minister Shimon Peres, an eloquent cosmopolitan who had spent hours negotiating with PLO leader Yasser Arafat, is committed to pushing the peace process forward. He hoped to fulfill the agreement on ending Israel's occupation of the West Bank and facilitate Palestinian election before January



Yitzhak Rabin: Victim of peace



Shimon Peres: The Rabin legacy

20, in 1996. Three days after the assassination, Israel and the PLO resumed talks which will lead to the hand over of Jenin, the first town in the West Bank to be transferred to Palestinian authority since self-rule began in Gaza and Jericho 18 months ago.

Until Rabin's assassination it appeared that the Israeli-Syrian peace process had been put on hold. Now Peres has launched an optimistic pursuit of peace with Syria. There was a definite shift in the Syrian attitude, as Syria had declared that the speeding up of the peace process was necessary to prevent events such as the assassination and it had sent its foreign minister Farouk Al Shara to a meeting at which his Israeli counterpart Ehud Barak would be present.

Change of guards in Poland

Polish President Lech Walesa, the former Solidarity Trade Union Leader, saw his grip on power wrested from him as he trailed his post communist challenger Aleksander Kwasniewski, by a final margin of 3.44 per cent votes, in the November 20 run off to Presidency, last year.

Walesa, who put an end to four decades of iron-grip communist rule in the post-war Poland and in 1989 won only 48.28 per cent of the vote compared with the young and polished Kwasniewski's 51.72.

In the election which was a symbolic duel between Poland's two major post war forces,

Walesa keyed his campaign to fears of a communist resurgence while Kwasniewski (41) insisted he could be trusted to transcend his party's totalitarian past.

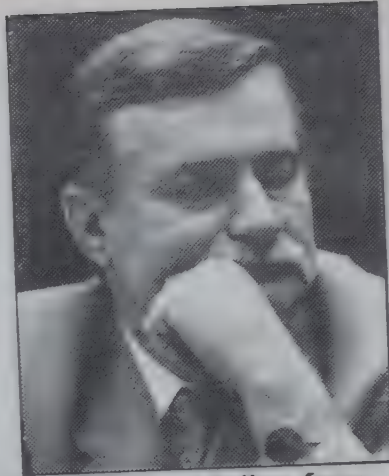
Kwasniewski, quite unexpectedly after the elections resigned from the membership of his ex-communist party-Social Democratic Party of Poland (SDRP). He surrendered his card no. 13 to Prime Minister Josef Oleksy, who is also from the same party of ex-communists.

Founding father of the Polish solidarity movement, Walesa had steadily lost popular support during his five year term in office, as

prices soared and living standards dipped in the Eastern European country. It also reflected the dismay felt in Eastern Europe over the economic ruin after the communists were overthrown.

Poland watchers however ruled out that victory for the ex-communist did not mean that there was a general feeling for a return to the old order and the chance victory of Kwasniewsky was influenced only by the hope that he could show better results with the exacting task of economic reconstruction by switching over from socialism to market-oriented economy. In this task, the new President is expected to have a smooth run in office as the Government also is headed by an ex-communist Prime Minister.

Despite Walesa's shaky stay in power, Polish economy had achieved some results in saving itself from total economic disaster by bringing down the annual inflation rate from an almost incredible 600 to 20 per cent. The task ahead for Kwasniewsky would be as staggering as it was before with the economy having to achieve a



Lech Walesa: Fallen from grace

output bounced back to an annual rate of about five percent while this was not the case with most of the other East European economies.

growth rate of not less than five to six percent. This can not be ruled out as the Polish economy had shown signs of strength.. Though Polish output came down to 40% within months of the introduction of market reforms in 1989, by 1993 its industrial

Peace forced in war-torn Bosnia

After four long and dreadful years of war, Muslim Bosnia, Croatia and Serbia arrived at a peace agreement to hopefully mark the end of ethnic hostilities in Bosnia-Herzegovina of the former communist Yugoslavian republic, in November last year at the initiative of the U.S. President Bill Clinton.

The three major parties to the conflict which killed 2,50,000 people and made 20,00,000 others homeless, hesitantly agreed for the peace accord in the Wright-Patterson Air Force base in Dayton, Ohio, after nearly three weeks of deliberations. President Alija Izetbegovic of

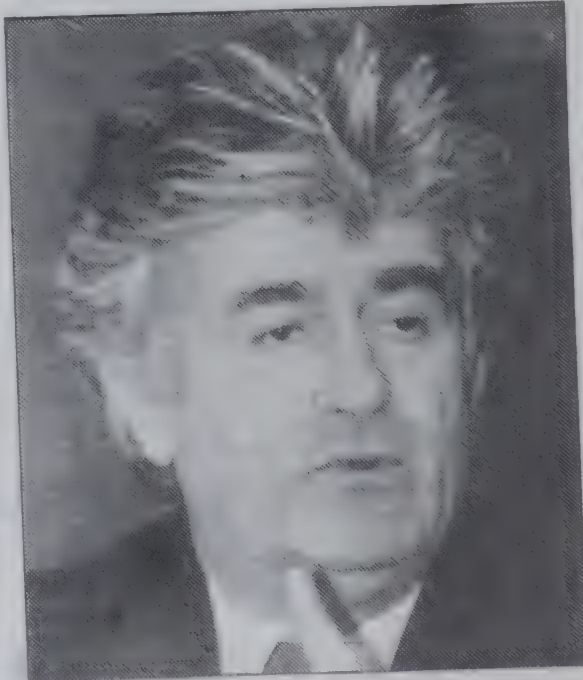
the Muslim Bosnia, Franjo Tudjman of Croatia and Slobodan Milosevic of Serbia were the principal signatories to the peace treaty which is to be implemented at the supervision of 60,000 strong

NATO forces. The peace deal, part of which is the constitution of the new Bosnian state has been described by many critics as Mc Arthur Number 2, as it is like the Japanese constitution cajoled by the United States.

Often being described as the Dayton 'forceps' peace delivery the Bosnia peace deal is riddled with more problems than solutions, as the Bosnian Serbs led by its leader Radovan Karadzic had put forward for a special status for them in the capital city of Sarajevo. Bosnian Serbs who were not a party to the Dayton deal, were represented by the Serbian President in the peace negotiations.

The Dayton talks had achieved nothing for the Bosnian Serbs, except assuring them a narrow land corridor linking the city to the enclave Gorazde.

If the Bosnian Muslims had



Radovan Karadzic: Out of the peace plan

had to live through the deadliest bloodshed Europe had ever seen in the years after World War II as a result of Serbian frenzy, Karadzic obviously does not believe that the Serbs of Sarajevo should be expected to pay a price by way of the reprisals they fear from the new Muslim-Croat federation.

The following were the Dayton accord's main points:

- ◆ NATO troops, which will replace the UN troops, will supervise separation of forces
- ◆ Bosnia will be an internationally recognised state within its present borders.
- ◆ That state will consist of a Bosnia - Croat Federation and the Bosnian Serb republic.
- ◆ The capital Sarajevo will remain united.
- ◆ The central government will include a parliament, three member collective presidency and constitutional court.
- ◆ Free democratic elections will take place under international supervision.
- ◆ Refugees will be allowed to return to their homes.
- ◆ Human rights will be monitored by an independent commission.
- ◆ People charged with war crimes will be excluded from political life.

The last clause of the main points of the accord was a severe blow to the Bosnian Serb

leader, as Karadzic and his Army General Ratko Mladic were found to be guilty of war crimes by an independent Yugoslav war-crimes commission for the second time in October 1995. Quite expectedly, Karadzic had warned that the Dayton accord would not work if he was arrested or barred from political life on charges of war crimes. Mladic on the otherhand had openly denounced the accord.

The bulk of the NATO peace force for Bosnia are to be drawn from British, French, German and US troops. The US has pledged the maximum contingent of 20,000 troops while German cabinet approved the deployment of 4,000 troops even before the agreement was formally signed.

Meanwhile the European Union foreign ministers who met in Brussels in November last year discussed a multi-billion dollar reconstruction package for Bosnia and Croatia. Conventional estimates were that Bosnia needed at least \$ 5 billion in the next three years to put itself into some shape.

What is in store for the NATO mission in Bosnia remains to be seen with the militant leaders of the Bosnia Serbs warning that Sarajevo may become the 'Beirut of Europe' if the western powers force the ethnic unification of the city under the NATO flag.

The French 'go-by' for NPT

Despite being a signatory to the Nuclear Non-Proliferation Treaty (NPT), France is going ahead with nuclear testing for fears of its safety. In 1995 France conducted five of the eight proposed nuclear tests which ended a three-year French moratorium on nuclear tests that had been joined by all of the world's nuclear powers except China, which set off an underground nuclear blast on August 17 last year.

The fact that the French tests were conducted on Mururoa atoll, far away from any human concentration in the French South Pacific didn't silence critics all over the world. Although France had reaffirmed that tests were conducted in conditions having absolutely no harmful effects on the environment and in such a safe way that there was no risk of leakage of radio active materials, condemnation began rolling in from all around the world minutes after the first bomb exploded with the power of up to 20 kilotonnes of conventional explosives, in September last year.

In protest New Zealand and Chile recalled their ambassadors from Paris. Australia stopped short of doing so, but said the resumption of

French nuclear tests was 'stupid'. The White House urged a halt to further tests while Japan and Russia joined the long list of nations protesting against the tests.

Detractors of France perceive that President Chirac's defiant mood to go ahead with the test series is ironical for France has played a very active role in encouraging a number of countries to sign the NPT which might otherwise have been hesitant to do so.

France also had revealed its intention of signing the Comprehensive Test Ban Treaty (CTBT) banning all nuclear tests, without any reservation in Autumn 1996. The French position is that before it does so, France must be sure that its deterrent nuclear force is reliable and safe and that it will be in position, like other countries to move on to the laboratory simulation phase.

France has been developing the capability of conducting nuclear tests using computers and modern technologies without having to resort to real life tests, for which they desperately want to complete the present series of eight tests.

Cuba: Change of moods in US

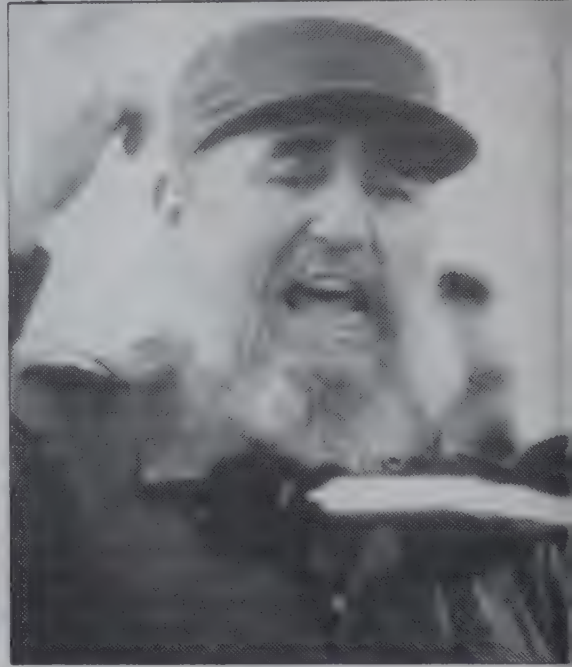
The year 1995 marked a distinctive change of moods of the general public, business houses and the media in the US in favour of Cuba, the lone communist stronghold on the foot steps of the American continent in Atlantic and for its father figure Fidel Castro who is firmly seated in power since the 1959 revolution.

The Democratic government of President Bill Clinton has been finding itself increasingly isolated in its persistent effort to ostracise Cuba. By the largest margin ever, UN members on November 2 called the US to end its 33 year old trade embargo against Cuba imposed in 1962 during the Cuban missile crisis days. The voting was 117 to three with 38 abstentions on a resolution in the General Assembly. The US, Israel and Uzbekistan voted 'No' while U.S' allies Canada and France voted in favour of lifting the sanctions. Britain, Japan and Germany led the abstention team.

This is the fourth year in a row that the UN General Assembly has passed such a resolution, which is non-binding in nature and carries no legal weight, but packs the strength of international opinion and is generally being perceived as a moral blow to the Clinton administration. In 1994, 101 nations voted in favour of lifting the sanctions with 48 abstentions.

Castro, a guest of the UN during its 50th anniversary celebrations in Manhattan, New York, took the city by storm and the media and the first business family of America, the Rockefellers vied with one another to meet him. Editorials criticising the embargo appeared in several prominent US dailies including *The New York Times*.

The *Time* magazine went a step further to run a column saying the embargo only "hinders a stable transition to a democratised society,



Fidel Castro: Moving closer to US

which would be better achieved by flooding Cuba with tourists, businessmen, dialogue and commerce".

On the other hand, efforts are underway in the US administration to tighten screws on Cuba. The US senate was due to vote on a bill, the Helms-Barton Bill, asking Cuba to pay \$6 billion in compensation for American property confiscated and tens of billions more for property of Cubans seized after they fled to the US. It also aims at deterring foreigners from investing in Cuba.

Quebec: A Feeble 'No'

Centuries of mutual distrust and hatred between the French-speaking and English speaking Canadians in the state of Quebec in Canada may continue for some more time as the Quebecers voted against secession in a referendum held on October 30, last year.

More than 90% of Quebec's five million voters took part in the referendum to pick one of two words: Yes for secession and No if they wished remain part of Canada. The verdict was a feeble

No, by a hair's breadth: 50.6% against secession and 49.4 % for it.

The stakes were very high because secession meant that Canada would lose one-fourth of its population and one sixth of its territory. Political analysts feel that in the end, the historic referendum left the country's 28 million population more divided than united politically.

The separatists were led by Quebec Prime Minister and leader of the Party Quebecois (P.Q.)

Jacques Parizeau and Bloc Quebecois (B.Q.) leader Lucien Bouchard. Close to 60% of the 82% of the French-speaking (Francophone) Quebecers voted yes; predictably and 90% of the others, mainly English speaking (Anglophone) Canadians voted No.

However, Canadian Primer Jean Chretien, himself from the state of Quebec had the last laugh. Had the separatists won, the Federal government of Chretien would have had to exercise one of four options: accept Quebec's independence, challenge the vote on constitutional grounds, attempt a nationwide referendum or a second one in Quebec.

Parizeau, after the defeat in the referendum blamed the ethnic community of Quebec which makes up about 10% of Quebec's population or about 7,00,000 people. They voted overwhelmingly with the federalists providing them with a much needed swing to ensure 1.02% margin in favour of No. The Quebec Premier's comments drew sharp criticism from all quarters and the derogatory statements portrayed Parizeau as being more extremist and racist than Bouchard who has been trying to distance himself in the last few days of the referendum. The uproar forced Parizeau to tender resignation as Premier, making way for Bouchard to be the replacement.



Lucien Bouchard: Another referendum in mind



Jack Parizeau: Outgoing premier

Faith in Mandela reaffirmed

In less than two years, South Africans reaffirmed their faith in and commitment to the African National Congress (ANC) under the pragmatic leadership of Nelson Mandela in the first democratic elections to the three-tier local government on November 1 last year. At stake was the three-tier of government below the National and Provincial levels which is responsible for the delivery of services at the grassroots level.

This include 703 local government structures: the six Transitional Metropolitan Councils comprising greater Pretoria, Greater

Johannesburg, Vall, North East Rand, Greater Durban, and Greater Cape Town; 522 Transitional Local Councils which are urban areas outside the areas mentioned above; and 175 Rural District Councils.

Elections had been deferred in Kwa Zulu - Natal and in the Greater Cape Town area because of pending constitutional issues and political disputes.

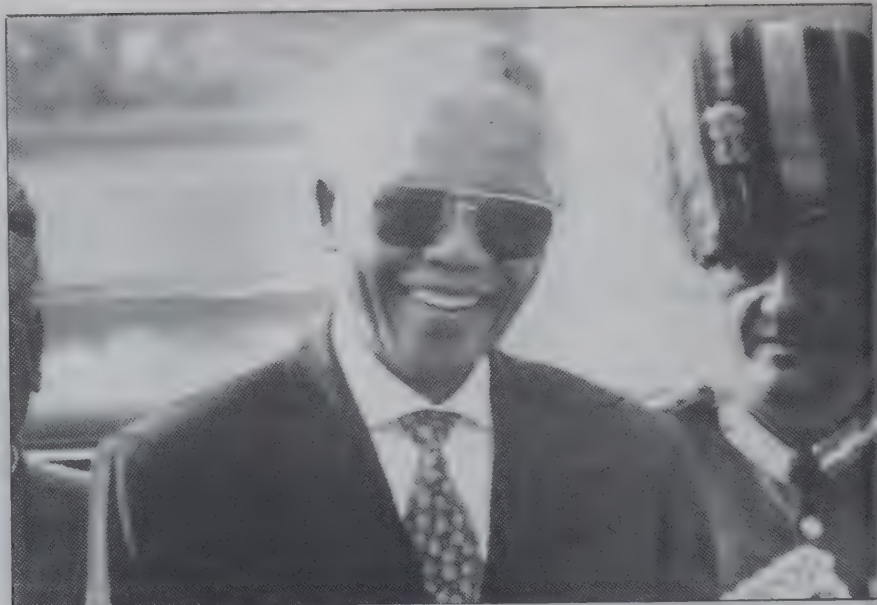
Around 75% of the total electorate voted, though the figure was less than last year's 86% recorded in the general elections held 18 months ago. All the political parties represented in

parliament (the ANC, the National Party, the Inkatha Freedom Party, the Freedom Front, the Democratic Party, the Pan Africanist Congress, and the Africanist Congress) as well as other parties and many other 'non-political' associations of tax-payers were in the fray.

The ANC secured 70% of the votes, compared to 63% in 1994. The share in percentage terms of the other major parties, with last year's figures in brackets, are: National Party 18.2 (20.39), Freedom Front 4.3 (2.17), Democratic Party 2.2 (1.73), P.A.C. 1.8 (1.25) and ACDP 0.38 (0.45).

The Inkatha Freedom Party is in a special category that there were no elections in Kwa Zulu Natal where its principal support lies. Defying the general perception that IFP is a regional party with crypto-secessionist aspirations, the Party fielded candidates not merely in areas of its known strength in the Greater Johannesburg area but also in other provinces. However, it has secured less than one percent of the votes polled - hardly an indication of its actual strength.

The seven percent gain in ANC votes (as compared to 1994) is believed to have made a dent in the popular support of National Party of



Nelson Mandela: Faith reaffirmed

former President and now Deputy President F.W. De Clerk and to a lesser extent of parties such as the PAC. The ANC made major gains in Western Cape, where the National Party heads the provincial government, capturing several conservative Afrikaner bastions.

The improved performance of the Freedom Front led by right-wing General Constand Viljoen also indicated the decline in popular support of the National Party in traditional Afrikaner areas. Despite the good show put up by the F.F., it may be noted that ANC has more Afrikaner MPs in the parliament than Gen. Viljoen's party.

Nigeria-Untouchables overnight

By hanging playwright, human rights activist and environmentalist Ken Saro-Wiwa, the military-ruled African nation of Nigeria invited the wrath of world community in November 1996.

Saro-Wiwa (54) who fought relentlessly for the minority rights of the Ogoni community - the race of his birth - and eight others were hanged to death in Port Harcourt prison on November 10, exactly 10 days after a Nigerian tribunal convicted them for the murder of four persons in May 1994, which was generally believed to be a fabricated accusation.

International community, including several human rights organisations with unchallenged credibility had appealed for clemency but the government of military dictator Gen. Sani Abacha

turned its back on all such calls. Gen. Abacha, in his typical way of shying away from accusing fingers, dismissed all allegations that it was political sentence.

Commonwealth heads of states, then meeting in Auckland, New Zealand immediately decided to suspend Nigeria from the organisation and some countries recalled or were considering recalling their diplomats in that country. An arms blockade also was proclaimed against Nigeria.

The ever defiant Gen. Abacha retorted by closing down diplomatic missions in the U.S. and some European nations including UK and South Africa in the home continent.

Africa's most populous nation, with a proud

African history dating back from 700 B.C, Nigeria has the dubious distinction of being the first member suspended from the 52-member Commonwealth comprising Britain, its former colonies and Mozambique.

The Commonwealth had given Nigeria an ultimatum to get itself democratised in another two years or face expulsion.

Saro-wiwa, who won the alternative Nobel prize in 1994 awarded by a Swedish Foundation had said that he had been framed because of his opposition to Abacha and to the oil industry which earns Nigeria 80% of its export income.

As leader of the Movement for the Salvation of the Ogoni people, a half million strong minority living in Southern Nigeria, Saro-Wiwa had been fighting for his people's self determination and protection of the environment.

The Anglo-Dutch oil company, Shell, first developed the oil fields of Ogoniland in Niger Delta four decades ago. But drilling operations had been suspended since 1993 after an outcry over excessive drilling which was leading to severe ecological imbalances in the region. Since then the Ogonis have been exploited to such an extent that many of them are today hiding in the forests and swamps of the region.

Finally the Shell International's subsidiary in Nigeria was driven out of the Ogoni region in late 1993 when activists sabotaged 30 million dollar worth of equipment. Until then the Nigerian Shell was producing 28,000 barrels of crude oil a day.

While Nigeria appeared to have become an international pariah overnight, it has been in disarray since 1967-70 Biafran war, an ethnic bloodbath that claimed close to 2,50,000 lives.



Ken Saro-Wiwa: 'Inhuman' treatment

Since independence in 1960, there have been ten Nigerian heads of State-seven of them military dictators who came to power through bloody coups. The country's population is 100 million, divided into many ethnic groups left by the British colonialists to live together as best they could within the territories of a single state.

Hole on Ozone Cover

The Ozone hole which appears annually in the atmosphere over the Antarctic persisted longer than ever in 1995. The ozone loss at the end of the year (in late November and early December) continued making the 'Ozone hole' phenomenon of 1995 the longest lasting on record, according to the World Meteorological Organisation.

The protective layer of ozone gas high over the antarctic had always replenished itself to some extent in winter time. Ozone researcher and winner of Nobel prize in Chemistry, Paul Crutzen had predicted that the ozone hole in 1995 would remain smaller than in earlier years but it proved the other way by the end of the year.

At its maximum at the end of September

and early October, the Ozone hole exceeded 20 million square kilometres, that was twice the size of Europe. Major ozone deficiencies of more than 10% were observed over northern and middle latitudes, expanding to an unprecedented 35% over Siberia, in Russia. The warning by W.M.O is quite alarming that ozone is continuing to decline at an average rate of close to three percent per 10 years. That means if the present rate of decline is allowed to continue, in another 330 years the ozone cover of Mother Earth will be completely peeled off, which makes life under the hot sun a next to impossible proposition.

Ozone losses would only abate around the middle of the 21st century provided countries adhered strictly to the agreements of

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the Montreal Protocol in which 70 countries - mainly from Europe and North America - under took in 1987 to ban Ozone killers such as Chloro Fluoro Carbons (CFCs), Hydrochloro-Fluorocarbons (HCFC) and halons, on a step by step basis.

It is however welcome news that the U.N

Environment Programme is aiming at introducing more restrictions on the use of ozone depleting chemicals and strict controls, although the powerful environmental organisation of Europe the 'Green peace' is sceptical about the effective implementation of this programme.

Breakthrough in Sri Lanka

Sri Lanka's 'Lion' flag was formally hoisted in the northern Jaffna town on December 5, last year marking the re-establishment of government control over the former Tamil rebel bastion after more than a decade. The victory was proclaimed after a 50-day long military operation code-named Operation Riviresa (Sunlight) started on October 17, 1995.

Proclaiming victory after the bloodiest war Sri Lanka has ever witnessed, the Government warned in a live radio broadcast from Jaffna that it was not the end of the war. "Very soon we will formally destroy and annihilate the separatist terrorists (LTTE)" - Deputy Minister of Defence Anurudha Ratwatte who hoisted the national flag in the Jaffna Fort said.

The Defence Minister's warning was a clear indication that the war would continue in the eastern divisions of the Jaffna peninsula and north-east provinces of the mainland where the rebel tigers were holed up.

The day after proclaiming victory in Jaffna, the Sri Lankan President invited all members of the Liberation Tigers of Tamil Eelam (LTTE) led by Velupillai Prabhakaran to lay down arms and offered them an amnesty guaranteeing their safety. The LTTE supremo hiding somewhere in the Mullaitivu jungles in the mainland, however, declined the offer for amnesty and vowed to continue the struggle until the separate Tamil country (Eelam) on the Sri Lankan soil becomes a reality.

The capture of Jaffna, witness to many a battle between ancient kings of Sinhala and Tamil origins, is however unlikely to end the 12 year

civil war that has killed more than 39,000 people. But it marked an apparent end of the rebel civil administration in which it ran a de facto government for about one million Tamils.

The war that began on October 17, with the Government putting all its might, claimed the lives of 508 soldiers and wounding over 2,000. The LTTE, according to the army figures, lost 1,925 cadres including the women's wing Chele Alila, and more than 5,000 were wounded.

The biggest casualty of the war was not however the dead or wounded on both sides but the half-a-million Tamil people who were rendered helpless refugees. They were forced to flee the Valigamam Division of the Peninsula which was theater of the battle, to Vadamarachchi and Then Marachchi divisions in east Jaffna and Vanni in the mainland, crossing the Kilali and Jaffna lagoons.

The LTTE was generally blamed for dragging the Tamil people back to the destructive war when it unilaterally violated the cessation of hostilities agreement on April 19 last year.



sumed armed hostilities with the Government which had proved itself to be flexible and accommodative amidst the intransigence of its counterpart during the short-lived period of negotiations. Contrary to L.T.T.E propaganda early last year that the Government was planning to invade Jaffna while talking peace, President Chandrika indicated no signs at all of such plans. To some extent it was true that there were no political plans until about September, to encircle Jaffna city and to fight the war with the LTTE to an end.

On August 3, the Government revealed its political package, outlining the basic contours of an almost federal constitution as the basis for the future polity of shared political power. The detailed proposals have been formulated so as to reflect five underlying considerations: consistency, coherence, clarity, effective implementation, and structures for the just and equitable resolution of Centre-Region disputes. In the distribution of powers and responsibilities between the two levels there were only reserved (ie Central) and Regional lists leaving no scope for encroachment by the Centre into regional jurisdictions through a Concurrent list. Unlike as in the Indian Constitution, the Governors were to be appointed only with the concurrence of the Regional chief ministers and they could be removed only if a two-thirds majority of the Regional council passes a vote of no-confidence. The Governors could not refuse to delay assent to bills enacted by the Regional Councils unless the Supreme Court determined that they were unconstitutional. The chief min-

isters could not be removed so long as they enjoyed the confidence of their Regional Councils.

In so many respects, the proposed Regions in Sri Lanka in the devolution package had been given larger powers than what was available to the States in India. For instance they had exclusive jurisdiction over industries and industrial development. They were free to undertake activities relating to broadcasting and media, including TV. They could set up regional, financial and credit institutions. They could have recourse to domestic and international borrowing, with concurrence from the Centre. Subject to broad guidelines specified by the Centre, the Regions could regulate and promote foreign direct investment, international grants and development assistance.

Tamil aspirations had been specifically met in important issues. Tamil was to be an official language fully coeval with Sinhala. The state lands within the Regions were exclusively vested in the Regional Councils.

It was a dream package sharing powers with the minority Tamils, but was rejected outright by the LTTE supremo Prabhakaran paving the way for the biggest and most sustained advance to the rebel-held north of the country in many years and sending the Tigers clearly on the run.

Though the theater of war may be shifted to the East, the Chandrika Government is all set to push through the devolution package in the parliament. Moderate Tamil parties like the TULF had already called for sending the proposed bill to the select committee of the house.

India's eyes and ears in Space

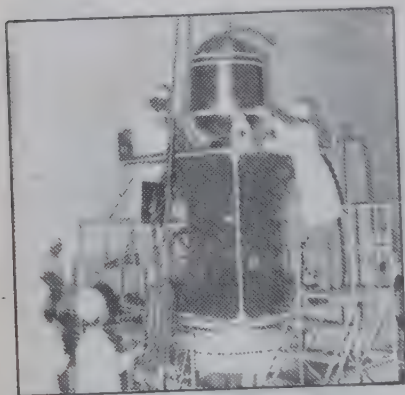
India's third indigenous communication satellite, Insat-2C shot into the skies from the South American seaport of Kourou in French Guiana on December 7, last year to usher in a new communications revolution in the country. The communications satellite which was put into space by the French Ariane-4 rocket, joined the other ISRO satellites, Insat 1D, Insat-2A and Insat-2B, which were providing television, telecommunications and weather services to India.

The 2,050 kg. Insat-2C carries 1,070 kg. of fuel that will last for a minimum of seven years. It provides telecommunications, wider television coverage, introduction of mobile satellite services and business networking in major Indian cities became possible since the spacecraft was positioned in its geostationary slot, at a height of 35,786 kilo metres from the surface of the earth.

India had spent about Rs. 200 crore for launching Insat-2C and another Rs. 125 crore for building the satellite. The design cost of Insat-2C is considered to be 25 to 30% cheaper than that of a similar satellite built by western nations including the launcher country France.

The satellite with an overall body size of 2.3 m x 2.5 m x 2.7 m is powered by a 23 sq.m. solar array containing six solar panels that will generate 1,620 watts of power. In a departure from the past, Insat-2C is not carrying a meteorological transponder to relay weather data, as there are enough Indian satellites doing the job.

Armed with 24 transponders more powerful than those used on earlier Indian satellites, the state-of-the-art Insat-2C has helped ISRO simultaneously cross several landmarks. Insat-2C is the first Indian satellite to be co-located with another Indian spacecraft Insat-2B at 93.5



degrees east. It carries India's first KU band transponders exclusively for telecommunication. Insat-2C carries 12 C-band transponders, of which two will have extended coverage from South-East Asia to the Middle East to cater to the vast Indian population in this segment. The remaining 10 will cater to the Indian sub-continent. There are also six extended C-band transponders.

Three very high frequency KU band transponders, with double the capacity of C-band transponders, will cater exclusively to business

communication in major cities, data net working and satellite news gathering. The KU band signals can be received by antenna small enough to be installed on window ledge.

The Ministry of Information and Broadcasting and the Department of Telecommunications, major beneficiaries of the Insat segment, are poised for a quantum leap in their activities with the launch of the Insat-2C.

The total number of transponders in the Insat segment-Insat-1D and 2A and 2B - will go from the present 54 to 78 with the addition of transponders by the Insat-2C which has transponders in the C-band, six in extended C-band, three in KU band and three in S-band.

The commercial value of the satellite is considered to be much more than the cost of building it. At the rate of \$10 million for a transponder for a 10-year use, the 24 transponders on board Insat-2C would mean \$240 million, considering the highly advanced three-band and other novel features on par with band or extended C-band transponder.

Enron is back as the deal re-worked

Rs. 1,000 crore was a powerful enough incentive to change the mind of the Shiv Sena-B.J.P Government of Chief Minister Manohar Joshi in Maharashtra, in favour of the US Power giants, the Enron Corporation.

The Enron Development Corporation had asked for damages for Rs. 1,000 crore for cancelling its 695 MW power project at Dabhol in Ratnagiri district of Maharashtra. With the first date for the hearing of the arbitration case in London scheduled for the 17th of October,

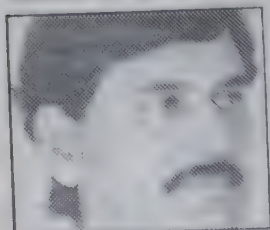
Chief Minister Joshi had decided to revive the project and begin negotiations with Enron.

Enron on the other hand had offered to address the Government's major concern about the project the high tariff, the large forex outflow that it entailed and the dollar linking of the tariff. Enron had offered to match the tariff of other competitively bid project in Maharashtra like the recently cleared Reliance Industries Limited's 410 MW plant at Patal ganga.

A change in the fuel, from distillates to



Manohar Joshi



Gopinath Munde



People's voice against the Dabhol project

alone will help Enron lower costs by about 10 paise per unit. Enron had also hiked the proportion of the project's equity that it had required for the Maharashtra State Electricity Board (MSEB) from 10% to 30%. Since the project's proposed equity was \$250 million, this meant MSEB would have to pay up about Rs. 240 crore for its state. An increased MSEB stake will mean less profit for Enron, and would go down politically. A higher amount of local funds, as well as local fuel supplies, would also enable Enron to link the tariff substantially from the dol-

Enron may however have to wait until early 1996 to resume work on the base load power project at Dabhol because of some apprehensions raised by the state planning and finance departments mainly about the advisability of the Government asking the MSEB to pick up the equity in the Dabhol Power Company, which is the Indian subsidiary of Enron, on grounds of resource constraints. This equity at Dabhol would set the MSEB back by Rs. 580 crores, which is over 60% of the state's annual plan in the power sector.

The fact that resources are scarce has been acknowledged and if the MSEB is unable to pick up the equity on its own, then it should be offered by Enron to any Indian entity nominated by the MSEB.

The Enron deal to set up the gas based 2015 MW power project in Dabhol was scrapped on August 3, 1995 by the Joshi Government in Maharashtra, igniting shock, anguish and protest among the political and business circles in India and the US. The scrapping decision was based on the recommendation of a cabinet committee headed by Dy. Chief Minister Yashwantrao Chavan. Power Minister Gopinath Munde, which stated that the deal signed between Enron and the previous Congress (I) Government was corrupt, one-sided and non-transparent. Chief Minister Yashwantrao Chavan while announcing the scrapping of

the deal in the State Assembly said that the terms of the \$2.8 billion project were one-sided and that the electricity would be too expensive.

Hinting at clandestine operations the report said that it was reasonably clear that several factors and forces seem to have worked to get Enron what it wanted. It also alleged that several discussions and proceedings on the project were not put on record.

As for the capital cost of the project was concerned, the report stated that not merely was the capital cost unreasonable, Enron seemed to have inflated it to accommodate for outgoings unconnected with the establishment of the Dabhol project and production of electricity. Apart from the single time effect of inflating the capital cost by over Rs. 2000 crore, there was also the attendant recurring effect of Rs. 360 crore per annum by way of guaranteed 16% returns on the investment.

Including the inflation in the capital cost the one-time loss to the state, actual or potential, could be as high as Rs. 10,250 crore, the report said and added that the foreign exchange outgo would be as high as Rs. 90,000 crore, with liquefied natural gas (LNG) as fuel.

The sub committee had also established that on the basis of the evidence that had turned up during the enquiry, and as evident from the records, it was clear that several 'undue and unusual concessions' were given to Enron.

Rating the fuel power from the Dabhol power plant as expensive, it said this was primarily due to the wrong choice of imported LNG as the fuel and the huge inflation in capital cost and various other facts. It also went on to say that the advice of the World Bank was not taken on the alternative fuel and on the size of the project.

Despite all the criticism against the Enron deal, the re-negotiation process now underway is almost certain to bring Enron back to Dabhol, thus alleviating fears of a temporary stop to the inflow of foreign capital to India.

India and UN Security Council

India formally made a strong plea in the UN General Assembly last year for being made a permanent member of the UN Security Council. It has thus become the first major developing nation to join a race in which Germany and Japan were the other contenders.

Indian diplomats have been making an all out effort to mobilise support for this case for the last 15 months. The strategy adopted in this effort was to highlight how India was committed to the cause of the world body by participat-

ing in its various peacekeeping missions. The obvious aim has been to portray India, one of the world's largest countries, as a responsible and capable power, a quality befitting an aspirant to the elite status in the community of nations.

India's stand has been that UN needs to be reorganised by expanding the membership of the Security Council. But his expansion according to New Delhi could not be effective if there was only a 'piecemeal' expansion of the perma-

nent members' category by including only Japan and Germany, just because they were economic super powers.

The Indian logic was that the Security Council was not a corporate board, where equity shares determine the voting power. At present, only five—the USA, Russia, France, Great Britain and China—of the 15 member Security Council are permanent members. They have the veto power, by which any negative vote cast in non-procedural matters nullifies the majority decisions, obtained with nine affirmative votes.

The rest of the ten members are elected by the UN General Assembly for a period of two years each. It is to be noted that the original charter of the UN, as framed in 1945, had envisioned only an 11-member Security Council, including the five permanent members.

The total membership of the UN was only 60 then. With rapid decolonisation in the 60's many newly emerged independent countries joined the U.N, and it was proposed that the composition of the Security Council should correspondingly reflect the increase in the total membership of the world body.

Accordingly, in 1965, the number of the non-permanent members of the Security Council was raised from six to 10 by amendment of Article 27 of the UN Charter. The UN then had a total membership of 117.

India maintains that applying the same logic, now that the UN has 185 members there is no reason why the Security Council should not be expanded again.

Another valid point in favour of India was that if France, Britain and China can be permanent members, given the level of their capability to influence world events, India is a worthy contender. The India lobby points out that given any criteria—population, size of economy, contribution to the maintenance of international peace and security and to peacekeeping

or future potential - India deserves to be permanent member.

The major hurdle in front of India now is getting the essential requirement of two-thirds majority votes in the General Assembly for the exalted status in the Security Council. In a likelihood, India's proposal will be met with other developing countries like Iran, Egypt, Nigeria, South Africa, Brazil and Argentina, not to speak of Pakistan.

Most of these developing nations are likely to protest not so much over the inclusion of India in the super league, as to their exclusion from it. Another problem is the nature of support from the five permanent members. At the moment their governments seem to be primarily interested in Japan and Germany included as permanent members.

Support for permanent seats for Japan and Germany has been extended in open statements by the US as well as some of the other existing permanent members. So far, the western nations, including the US, have backed no other candidate. However the US has said it has an 'open mind' on the candidacy of others like India. The US advocates the case of both Japan and Germany on the premise that they would redress the financial burden of the UN peace-keeping operations worldwide.

Although the US acknowledged the fact that India had a claim for a seat and that it is 'theoretically eligible', it has now tagged the issue of Kashmir and India's relations with Pakistan as criteria for consideration.

An open-ended working group of the General Assembly session in October last had agreed on the need for expanding the Security Council to reflect the changed international scene but had not considered the question of which nations should be made permanent members. The group will carry forward its deliberations in the 50th session of the Assembly later this year.

The Poll Mirage in J & K

The Election Commission on November 10 last year categorically rejected the recommendation made by the Union Cabinet on November 4 for conduct of assembly elections in Jammu and Kashmir, inflicting a severe blow to the Government's willingness to hold elections and bring the troubled state back to democratic mainstream of the country.

The three member election commission consisting of Chief Election Commissioner T.N. Seshan and Election Commissioners G.V.G.

Krishnamurthy and M.S. Gill rejected the recommendation on the ground that the conditions there were not conducive for holding of a free and fair election.

The decision was arrived at after taking into account details of the discussions it held with officials of the Union Government on November 7; detailed discussions and on the spot assessment made in the state during their visit on November 8 as well as views expressed by political parties.



Dr. Farooq Abdullah: No to elections

Immediately after the Election Commission's firm 'No' to holding elections, the popular National Conference, which ruled the state for decades under the leadership of Sheikh Mohammed Abdullah and later his son Dr. Farooq Abdullah, also opined that the situation was not conducive for elections.

The party had also decided not to participate in any elections held in the state until the Centre conceded the demand to restore the pre-1952 status to the State with certain modifications and amendments which would be in the interests of the people of all the three regions of the state-Kashmir valley, Jammu region and border areas of Ladakh.

In the pre-1952 position in Kashmir, only three central subjects of the state-defence, communication and external affairs-were handled by New Delhi and the rest left with the state Government.

The commission while rejecting the recommendation for holding elections observed that under Article 324 of the constitution it was imperative for the commission to satisfy itself about suitable conditions for holding of a free and fair poll.

I m m e d i

Dr. Farooq Abdullah had also declared that his party would boycott the Lok Sabha elections to be held by the middle of 1996.

Apart from political considerations, the NC had pointed out to the Election Commission, that elections had never been held in Jammu & Kashmir in December/January since 1948. Besides the weather factor, many mainstream parties felt that the Centre ignored their views on the issue of autonomy envisaged under Article 370 and its erosion over the years. Barring the BJP all National Parties had, in principle, supported the demand of NC for the restoration of autonomy.

The Prime Minister, while announcing his decision to hold elections in Jammu and Kashmir, however did not go beyond reiterating the commitment to Article 370 and promised to implement the accord arrived at between the then Prime Minister Indira Gandhi and Sheikh Abdullah in February 1975. The offer to consider a change of nomenclature of the Chief Minister and the Governor to Wazir-e-Azam and Sadar-e-Riyasat, if the State Assembly desired so, was seen only as a symbolic gesture on autonomy.

The NC grouse was that successive Central Governments had ignored the 1952 Agreement and contributed to a considerable erosion of the autonomy envisaged for the State and it could not go the people for votes without a respectable political package.

Latest from the Government's side was that it was contemplating the intervention of the Supreme Court to prevail upon the Election Commission to hold elections in Jammu & Kashmir, simultaneously with the Lok Sabha polls. It may be noted that elections for State Assembly was last held in 1983 and ever since the state has been under President's rule.

Brown tilts military balance

A conference committee of the House of Representatives and the Senate on the Foreign Operations Appropriations Bill in October last year, voted overwhelmingly to retain the US Senate version of the Hank Brown amendment permitting the transfer of military equipment to Pakistan through a one-time waiver of the Pressler law. The amendment now awaits Congressional approval.

The comfortable passage of Hank Brown amendment in the Senate thus clears way for arms supply to Pakistan causing grave concern in the Indian subcontinent. The voting in the Senate in favour of the amendment named after the Colorado Senator Hank Brown was 55 to 45,

which for all practical purposes will erase from records, the Pressler law which came into effect in the early '90s blocking US arms sales to Pakistan for five years on the suspicion of a clandestine nuclear programme.

Pakistan had pleaded with the Clinton administration that Pressler sanctions should be either erased or at least eased for any meaningful upturn is the badly damaged relations between the two countries. Throughout the long and often tortuous lobbying for relief from the rigorous sanctions of the Pakistan specific Pressler Amendment, the Benazir Government had also portrayed the larger issues at stake in the context of its troubled equations with India.



Orion: The fearsome fighter aircraft

Apart from the theme of 'fairness' and 'equity', the support of Pakistan to the US during the cold war was again a favourite theme during the senate deliberations - SEATO, CENTO, Gary Powers and the U-2 taking off from Pakistan, Islamabad's role in Henry Kissinger's secret visit to China in 1971 and Afghanistan and Iran, just to mention a few. Those calling for the 'no sale' of the package were pressing for additional restrictions or 'intrusive' verifications of Pakistan's secret nuclear programme. But there were not enough votes to dilute the amendment.



Hank Brown: The troublesome package

Defence analysts in India fear that the Brown amendment, now awaiting the Congressional approval might signal a return to the days of close military cooperation between the US and Pakistan. This view is gaining acceptance particularly because of an increasingly powerful lobby in the US - mainly in the Pentagon, which has had a close relationship with the Pakistani armed forces - which advocates cultivating Pakistan against fundamentalist Iran, rebellious Iraq and an unstable Muslim Central Asia.

The Brown Amendment has now put India definitely in a tricky security situation. Although India did not wish to divert scarce resources away from development to the

purchase of military hardware, that could now be avoided now as the country would have to consider the heightened threat to national security because of the arms supply to Pakistan.

The Brown package allows the transfer of three Orion reconnaissance and strike aircraft, 28 Harpoon missiles and 360 sidewinder missiles among other equipment to Pakistan. Other pieces include 18 C-Nite night-sighting missiles, targeting kits for Cobra helicopters, 24 M119 towed Howitzer artillery and four AN/TPQ-36 artillery locating radars.

The most fearsome weapon in the Brown package is believed to be the Orion P-3 aircraft which could easily tilt the balance in the Indian subcontinent. The P-3 C-II Orion developed by the US, specifically for operations against Soviet submarines such as the Kilo class, which is the mainstay of the Indian submarine fleet. But despite this effectiveness against Indian submarines, it is more likely that Orion will be used against ships because an Orion can pick up an enemy ship 150 km away with Harpoon missiles, even at low altitudes.

In the India-Pakistan situation Harpoon could be launched from a distance beyond radar ranges of Indian ships. A well-armed Harpoon carries enough blasting power to sink a ship. Before the Pressler Amendment came into force, Pakistan had already brought into service missiles of the Harpoon family. These, however, not air-launched. The Brown package envisages 28 more, most of them air-launched.

The AIM-9L, which is a third generation sidewinder missile which is capable of rejecting decoys enroute to the target. The new batch of 360 missiles would replenish the air-to-air combat capability of Pakistan's F-16 fleet, which

en depleting since the Pressler ban cut off military supplies from the US.

The most significant undelivered equipment is 28 F-16 fighter jets (supersonic), which are capable of delivering nuclear weapons. This is because their delivery would defeat US non-proliferation goals and invite protests from India, it had been left out of the Brown proposal. The Clinton Administration is now finalising plans to sell the fighters to a third country—may be Taiwan, Indonesia, Thailand and Turkey—and turn the money to Pakistan. Meanwhile Islamabad has been negotiating with France for state-of-the-art Mirage 2000-5.

The acquisition of Mirage-2000-5 fighters will be the most worrisome Pakistani plan in the Indian point of view as right now both India and Pakistan have an almost equal number of multi-role fighters—if Pakistan gets the Mirages, its tally will double.

In the Indian point of view, the Brown Amendment came at a time when remarkable progress was registered in Indo-US relations especially in the areas of trade and commerce where the liberalisation of the Indian economy had created dramatic openings for American companies. It is likely that these prospects will now be adversely affected to some extent.

Jharkhand becomes 'autonomous'

A dream came true for the 'Adivasis' of Jharkhand when the Santhal Parganas belt of Jharkhand, on August 6, last year as the Jharkhand Autonomous Council (JAC) was constituted by the Bihar Government. The JAC now in principle allows the tribals a free hand to administer areas which they claim as their homeland without reducing overall control of the State government over the region.

The new regional council which falls too short of a full fledged state, was inaugurated by the Bihar Chief Minister Laloo Prasad Yadav on August 9. The Autonomous Council headed by Jharkhand Mukti Morcha (JMM-Soren) leader Shibu Soren is having 29 members, who represent political parties in proportion to their strength as reflected in the last assembly elections.

The JAC will have a legislative body with 80 members, half of them will be elected periodically and the other will be MLAs and MPs representing Jharkhand region in the State assembly and the Lok Sabha.

To start with, all the 80 elected members are nominated from different political parties. The first-ever election of the JAC will be held simultaneously with the parliamentary elections due later this year.

Although JAC with limited powers and a small budget allocated by the Bihar Government is a far cry from the autonomous state, it will be the first-ever concrete step which may in due course lead to the formation of a separate state. The JAC will have only residuary powers which are given to it by the state government. It will lack any effective control over minerals which are the main source of income of the area. Its powers to collect revenue may not be more than that of a Municipal Corporation. The JAC never has control over bathing and burning

ghats, municipalities, primary and secondary schools among many other minor portfolios.

Major decisions with regard to appointment of district magistrates or senior police officials will be taken by the Bihar Government.

Although the JAC came into being without much fanfare it won't be smooth going for the Council and the Bihar Government as a few major political parties from the opposition have denounced the composition of the council. The BJP and the JMM (Mardi group) declared their resolve to oppose the council on the ground that it is too little, too late. The two other protagonists, AJSU (All Jharkhand Students Union) and the JPP (Jharkhand Peoples Party) also were not happy with the composition of the council.



Shibu Soren: JAC Chairman



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Awards And Honours



Miss Universe pageant, Windhoek: Manpreet, Chelsi and Lana

Nobel Prizes
National Honours
Science
Literature
Arts & Music
Films
Media
Peace & Humanism
Miscellaneous

Gandhi Peace Prize: The Gandhi Peace Prize is being added to world's most prestigious awards. The announcement on the first recipient of the award in the name of the Father of the Nation is awaited. The details of the award were announced by the Prime Minister P. V. Narasimha Rao on Gandhi Jayanthi, October 2, 1995. The Gandhi Peace Prize would be on a par with the Nobel Peace Prize. The Rs. 1 crore cash prize would be given to a person working along Gandhian ways and methods. The jury headed by the Prime Minister will select the awardee.

Nobel Prizes

Winners in the last 10 years:

Peace

- 1985 International Physicians for Prevention of Nuclear War (US).
- 1986 Elie Wisel (US).
- 1987 Oscar Arias Sanchez (Costa Rica).
- 1988 UN Peace Keeping Forces.
- 1989 Dalai Lama, (Tibetan, living in India since 1959).
- 1990 Mikhail Gorbachev (USSR).
- 1991 Mrs. Aung San Suu Kyi (Myanmar).
- 1992 Miss Rigoberta Menchu (Guatemala).
- 1993 Nelson Mandela & F.W. De Klerk (South Africa).
- 1994 Yasser Arafat (PLO), Yitzhak Rabin and Shimon Peres (Israel).

Physics

- 1985 Prof. Klaus Bon Klitzing (FRG).
- 1986 Ernst Ruska, Gerd Binnig (both FRG), and Henrich Rohrer (Switzerland).
- 1987 Dr. K. Alex Muller (Switzerland) and Dr. George Bednorz (FRG).
- 1988 Leon Lederman, Melvin Schwartz and Jack Steinberger (US).
- 1989 Dr. Norman F. Ramsey (USA), Dr. Hans G. Dehmelt (USA), Dr. Wolfgang Paul (FRG).
- 1990 Jerome I. Friedman, Henry W. Kendall (both USA) and Richard E. Taylor (Canada).
- 1991 Pierre-Gilles de Gennes (France).
- 1992 George Charpak (France).
- 1993 Russell Hulse & Joseph Taylor (USA).
- 1994 Bertram N. Brockhouse (Canada), Clifford G. Shull (USA).

Chemistry

- 1985 Herbert A. Hauptman and Jerome Karle (USA).
- 1986 Dudley R. Herschbach (USA), John Charles Polanyi (Canada), Yuan Tesh Ltd Lee (Taiwan).
- 1987 Dr. Donald J. Cram and Dr. Charles J. Pedersen (both USA), Jean-Marie Lehn (France).
- 1988 Johann Deisenhofer, Robert Huber and Hartmut Michel (all FRG).
- 1989 Sydney Altman, Thomas Cech (both USA).
- 1990 Elias James Corey (USA).

The wishing tree

October 5, 1995. BBC radio in Northern Ireland announced the decision of the Nobel Committee to award the Nobel Prize for Literature, 1995, to 56-year-old Seamus Heaney, as much of rural Ireland was tucking into lunch. The radio then broadcast a recording of Heaney reading one of his best-loved poems, "the wishing tree", set to local music:

Widely regarded as the greatest, most accomplished, influential Irish poet since William Butler Yeats, Heaney is the first poet to win the prize since 1992.

The decision may have been made with an eye to the past year's paramilitary ceasefires and difficult negotiations in Northern Ireland.

He began writing in 1962. In the 1960s, Heaney belonged to a group of poets in Belfast, who, he said, "used to talk poetry day after day with an intensity and prejudice that can not but have left a mark on all of us." Within four years, he began lecturing in English at his alma mater among the first generation of northern Irish Catholics to rise to academic prominence in a part of Ireland dominated by pro-British Protestants.

His early poetry is rooted in the farmland of his youth, and communicates a strong physical sense of environment with subtlety and economy of words as in *Eleven Poems* (1965) etc.

In 1968, as tensions rose between Protestant hardliners and Catholic civil-rights protesters, Heaney toured the province reading his early poems on rural life, laced with images of hedges and pond life, butter-making and digging for potatoes.

Heaney's early collections, *Death of a Naturalist* (1966) and *Door into the Dark* (1969), were praised as nature poetry of the kind written by Ted Hughes. *Wintering Out* (1972) and *North* (1975) established him as a more substantial writer, engaging with serious cultural and political issues of Irish identity in a territory torn by dispute. *Field Work* (1979) is gentler in its approach but contains public and political poems of great achievement such as 'Casualty' and 'The Toome Road'.

Selected Poems 1965-75 was published in 1980, together with *Preoccupations*, selected essays and lectures from 1968 to 1978. *Sweeney Astray* appeared in 1983 and *Station Island* in 1984.

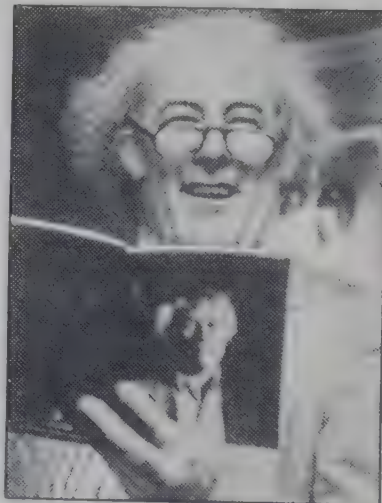
Born in 1939 on a farm in Mossbawn, County Derry, Northern Ireland, the son of a Roman Catholic farmer and cattle dealer, Heaney won scholarships to St. Columb's College, Londonderry, and Queen's University, Belfast. He worked as an English teacher at St.

Thomas's Secondary School, Belfast and at St. Joseph's College, before being appointed lecturer at Queen's University. He was guest lecturer at the University of California, Berkeley, in 1970-71, and in 1976 settled in Dublin to work as part-time lecturer at the Carysfort a College of Education. He began teaching at Harvard University in 1982, becoming Boylston Professor of Rhetoric at Harvard in 1984. From 1989 to 1994, he was professor of poetry at Oxford University. His 14th volume of writings, *The Redress of Poetry*, was published in September, 1995.

His command of the traditional lyric, charged by a language that both scrapes and soars, makes him an eloquent voice for a nation's mixed feelings and ambitions.

His commitment to the land ("Between my finger and my thumb/The squat pen rests./I'll dig with it.") and to the labouring communal life was a heritage he made into a pastoral theme. With *North* he began to explore themes of violent Irish history ("mother ground/..... sour with the blood/of her faithful") that he next confronted with a more urgent and autobiographical emphasis in *Field Work*. The concerns and ingredients of his work come to a head in his masterpiece, the long title poem of his volume *Station Island*.

Heaney is also an incisive critic. His *Preoccupations* traces how "my roots were crossed with my reading." This collection includes 'The Fire i' the Flint: Reflections on the Poetry of Gerard Manley Hopkins'.



- 1991 Richard R. Ernst (Switzerland).
 1992 Rodolf A. Marcus (USA).
 1993 Kary B. Mullis (USA) and Michael Smith (Canada).
 1994 George A. Olah (USA).

Medicine & Physiology

- 1985 Michael S. Brown & Joseph Goldstein (USA).
 1986 Stanley Cohen & Rita Levi-Mondalcini (USA).
 1987 Dr. Susumu Tonegawa (Japan).
 1988 James Black (UK), Gertrude Elion & George Hitchings (USA).
 1989 Dr. J. Michael Bishop, Dr. Harold E. Varmus (USA).
 1990 Joseph E. Murray, E. Donnall Thomas (USA).
 1991 Erwin Neher & Bert Sakmann (Germany).
 1992 Edmond Fischer & Edwin Krebs (USA).
 1993 Dr. Richard J. Roberts (UK), Dr. Philip A. Sharp (USA).
 1994 Alfred Q. Gilman (USA), Martin Rodbell (USA).

Economics

- 1985 Franco Modigliani (USA).
 1986 James McGill Buchanan (USA).
 1987 Robert M. Solow (USA).
 1988 M. Maurice Allais (France).
 1989 Trygve Haavelmo (Norway).
 1990 Hary M. Markowitz, William F. Sharpe, Merton H. Miller (USA).
 1991 Ronald Coase (USA).
 1992 Gary S. Baker (USA).
 1993 Robert W. Fogel & Douglass C. North (USA).
 1994 Prof. John C. Hasranyi (Hungarian living in USA), John F. Nash (USA), & Reinhard Selten (Germany).

Literature

- 1985 Claude Simon (France).
 1986 Wole Soyinka (Nigeria).
 1987 Joseph Brodsky (Soviet poet living in USA).
 1988 Naguib Mahfouz (Egypt).
 1989 Camilo Jose Cela (Spain).
 1990 Octavio Paz (Mexico).
 1991 Nadine Gordimer (South Africa).
 1992 Derek Walcott (St. Lucia).
 1993 Tony Morrison (USA).
 1994 Kenzaburo Oe (Japan).

National Honours

Bharat Ratna: The following are the recipients so far: C. Rajagopalachari (1954), S. Radhakrishnan (1954), C.V. Raman (1954), Jawaharlal Nehru (1955), Bhagwan Das (1955), M. Visweswariya (1955), Govind Ballabh Pant

Indian Nobel Laureates

Rabindranath Tagore (1861-1941): Author and educator. Founded Shantiniketan (1901) which later became Vishwabharati University. Tagore wrote love lyrics. Gitanjali and philosophical Sadhana are important works. India's national anthem was written by Tagore. Awarded Nobel Prize for literature in 1913.

C.V. Raman (1888-1970): Physicist. Raman was born at Thiruvanaikkaval near Tiruchirappilly in Tamil Nadu. Educated in Presidency College, Madras. Married to Lokasundari. Awarded Nobel Prize for Physics in 1930 for his study of the scattering of light. Popularly known as Raman Effect, the theory describes change in the frequency of light passing through transparent medium.

Hargobind Khorana (b. 1922): Now an American citizen, was born in Rajpur, Punjab, now in Pakistan. He took his Ph.D. in Chemistry from the University of Liverpool and in 1960 joined the University of Wisconsin. Khorana was awarded Nobel Prize for Medicine in 1968 for the interpretation of genetic code and its function in protein synthesis. He is married to a Swiss.

Mother Teresa (b. 1910): Was born to Albanian parents in Skopje, Yugoslavia and baptized Agnes Gonxha Bojaxhin. She came to India when she was 18 and took up teaching. She established a new congregation, Missionaries of Charity, which was approved by Vatican in 1950. Mother Teresa became an Indian citizen in 1948. She was awarded Nobel Prize for Peace in 1979.

Subramanian Chandrasekhar (1910-1995): Now an American citizen, was born at Lahore, now in Pakistan. He was educated in Presidency College, Madras. Nobel laureate C.V. Raman was his uncle. Married to Lalitha, who is also a Physicist. Awarded Nobel prize for Physics in 1983 for what is known as Chandrasekhar's Limit, which determines the minimum mass of a dying star enabling it to survive.

(1958), D.K. Karve (1958), B.C. Roy (1961), P.D. Tandon (1961), Rajendra Prasad (1962), Zakir Hussain (1963), P.V. Kane (1963), Lal Bahadur Shastri (posthumous 1966), Mrs. Indira Gandhi (1971), V.V. Giri (1975), K. Kamaraj (posthumous 1976), Mother Teresa (1980), Vinoba Bhave (1983), Frontier Gandhi Khan Abdul Ghafar

Khan (1987), M. G. Ramachandran (posthumous 1988). Dr. B.R. Ambedkar (1990), Dr. Nelson Mandela (1990). Rajiv Gandhi (Posthumous, 1991), Sardar Vallabhai Patel (Posthumous, 1991), Morarjee Desai (1991). J.R.D. Tata, Satyajit Ray, (posthumously) Maulana Adul Kalam Azad and Netaji Subhas Chandra Bose (1992). The award to Netaji was withdrawn later.

Dadasaheb Phalke Award : Recipients so far: Devika Rani Roerich, B.N. Sircar, Prithviraj Kapoor (posthumous), Pankaj Mulik, Ruby Myers (Sulochana), B.N. Reddy, Dhiren Ganguli, Kanan Devi, Nitin Bose, R. C. Boral, Sohrab Modi, Naushad Ali, P. Jairaj, L.V. Prasad, Durga Khote, Satyajit Ray, v. Shantaram, B. Nagi Reddy, Raj Kapoor, Ashok Kumar and Lata Mangeshkar, A. Nageswara Rao, Bhalji Pendarkar, Bhupen Hazarika, Majrooh Sultanpuri, Dilip Kumar (1994). Rs.100,000.

Kendriya Sahitya Akademi Awards 1994: Rebati Mohan Dutta Choudhury (Assamese), Syed Mustafa Siraj (Bengali), Jitendra

Sharma (Dogri), Dom Moraes (English), Ramesh Parekh (Gujarati), Ashok Vajpeyi (Hindi), Girish Karnad (Kannada), Sajood Prabhu (Konkani), Gangesh Gunjan (Maithli), Vishnu Narayanan Namboodiri (Malayalam), Raj Kumar Manisingh (Manipuri), Dilip Chitre (Marathi), Jiwan Namdung (Nepali), Guru Chran Patnaik (Oriya), Mohinder Singh Sarma (Punjabi), Karni Dan Barhath (Rajasthani), Radhavallabh Tripathi (Sanskrit), Kala Prakash (Sindhi), Pooneelan Sri Kandeswara Bhaktavatasalan (Tamil), Gunturu Seshendra Sharma (Telugu), and Mazhar Imam (Urdu). (Rs. 25,000 each)

Science

Bhatnagar awards, 1995: Rajendra Bhatia, Indian Statistical Institute, New Delhi (mathematical sciences); Mustansir Barma, Tata Institute of Fundamental Sciences, Bombay and Sriram Shastry, Indian Institute of Science, Bangalore (physical sciences); J. Chandrasekhar, In-

The heart-throb of millions

Dilip Kumar, the heart-throb of a whole generation of film goers, is the 26th recipient of the Dada Saheb Phalke Award for his outstanding contribution to Indian cinema.

Dilip Kumar, whose real name is Yousuf Khan, was born in Peshawar in December, 1922. He made his film debut with *Jwar Bhatta*, in 1944.

A contemporary of Raj Kapoor and Dev Anand, he emerged as the most effective tragic hero. He has performed some of the most memorable roles associated with Hindi cinema. If there was ever a filmi Devdas, closer to life, it was played by Dilip Kumar opposite Vijayanthimala. He was, first and fore-

most, a sensitive artist, in a class of his own. The brooding eyes, the ruffled hair and the resonant voice made him the perfect tragic hero who has had few equals. Whether it was the jilted lover in *Andaz*, or the compulsive alcoholic in *Daag*, or the star-crossed lover in *Mughal-E-Azam*, he conveyed through his marvellous performances the pathos and even the heroism of the losers in

the battle of life.

In 50 years, Dilip Kumar turned into the country's most accomplished and sophisticated actor. He came to be known as the 'Tragedy King'. He married the 'Yahoo' girl Saira Bano, daughter of his contemporary Naseem Bano, and 22 years younger than him.



Dilip Kumar with Saira Banu

In films like "*Naya Daur*", "*Ram aur Shyam*" and "*Gopi*" he showed that he could play the comedian equally well. And after he "superannuated" as a hero, he played character roles with tremendous effect, particularly in "*Shakti*" and "*Mashaal*".

The films for which he would be remembered include such all-time hits as

"*Andaz*", "*Azad*", "*Deedar*", "*Mughal-e-Azam*", and "*Ganga Jumna*".

Of the Raj-Dilip-Dev trio, it is said that while Raj Kapoor and Dev Anand had strong fan following among specific sections (teenagers rooted for Dev "saab", and the more mature audiences preferred Raj Kapoor) Dilip Kumar, in his heyday, was a man for all sections, and all tastes.



K.L. Sebastian

dian Institute of Science, Bangalore and K.L. Sebastian, Cochin University of Science and Technology, Cochin (chemical sciences); S.E. Hasnain, National Institute of Immunology, New Delhi, and M. Muniyappa, Indian Institute of Science, Bangalore (biological sciences); B.

N. Goswami, Centre for Atmospheric Sciences, Indian Institute of Technology, Bangalore (earth, atmosphere, ocean and planetary sciences); K. Chattopadhyay, Indian Institute of Science, Bangalore, (engineering sciences) S.K. Panda, All India Institute of Medical Sciences, New Delhi, and Anil K. Tyagi of the University of Delhi (medical sciences).

ICMR awards, 1993: Dr. Ambedkar Centenary Award-G. Padmanabhan, director, Indian Institute of Science, Bangalore (excellence in biomedical research); Basanti Devi Amirchand Prize (1994): Dr. Indira Nath, All India Institute of Medical Sciences, New Delhi (outstanding work in the field of immunology of leprosy); Amrut Mody Unichem Prize: T. Jacob John, Christian Medical College, Vellore (research work in vaccinology); Other awardees: Col. Kripal Singh, Guru Hari Krishnan hospital, New Delhi; Dr. Brahm S. Srivastava, CDRI, Lucknow; Prof. R.N. Srivastava, AIIMS, New Delhi; Dr. Anita Panda, Dr. Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi, Dr. Mary Jesudasan CMC, Vellore, Dr. Shobha Broor, AIIMS; Dr. G.S. Gupta Punjab University, Dr. Kamala Gopalakrishnan, Institute for research in reproduction, Bombay, DBS Das, ISPAT general hospital SAIL, Rourkela, Dr. S.K. Kar, director, Rajendra Prasad memorial research institute of medical sciences, Patna; Dr. S.L. Broor, GB Pant hospital, New Delhi, Dr. P.P. Gupta, Punjab agricultural university, Ludhiana; Dr. Usha Saraiya, Grant medical college, Bombay, Dr. V. Vasuki, VCRC, Pondicherry; Dr. Nageshwara Rao, AIIMS and Dr. V.K. Sharma, PGI, Chandigarh; Shakuntala Amir Chand prize: Dr. Pratibha Chaturvedi and Dr. Rinee Mukherjee, Lucknow; Dr. S. Christine Tells, Bangalore; Dr. S.J.S. Flora, Gwalior and Dr. Ashok Chauhan, Chandigarh.

NRDC award for inventions, 1995: Ajit Madhav Patankar and Ashok Kumar Bayala, Bhabha Atomic Research Centre, Bombay ("Intelligent Braille interpreter") (Rs. 75,000); Dr. R.A. Mashelkar, (Director), Dr. S. Ponrathnam, Dr. C.R. Rajan, Dr. S.R. Naik, Dr. J.G. Shewale, Dr. G.R. Ambedkar, Dr. K.K. Krishnadas, NCL, Pune (crossed-link macroporous polymer maxtrix)

(Rs. 50,000); Narhar Gopal of M/s. Ferrites India, Bombay (hysteresis microprocessor controlled loop tracer) (Rs. 30,000); Sibnath Maity, CMRI, Dhanbad ('high set remote prop') (Rs. 30,000).

Masaji Takeda Medal: (for medical research, at 15th International Diabetes Federation Congress, Japan): Prof. J.S. Bajaj, renowned diabetologist and biomedical scientist.

City of Medicine Award, 1994: Dr. Mansukh Wani (of India) and Dr. Monroe Wall, both of Research Triangle Institute in North Carolina for their joint discovery and development of two anti-cancer drugs. \$5000 each.

Ramaeshwardas Birla Smarak Kosh: Dr. Indira Nath, AIIMS, Rs. 150000.

Japan Prize, 1995: Dr. Nick Holonyak Jr. Professor, University of Illinois (for inventing the first practical light emitting diode in the 1960's and for his later work on semiconductor lasers).

Dr. Edward Fred Kripling, professor emeritus at Florida state 'varsity. (for developing the use of sterile insects to fight insect pests) winner of 1992 World Food Prize). \$ 500,000 for each winner (prize often referred to as Japan's Nobel Prize)

Sri Om Prakash Das Award: Dr. M.R. Sethuraj, Director, IRRI, Rs. 50,000.

Rice Science Award: Ms. C.A. Rosamma, (Kerala), India, Ms. Mai Thi Mien (Vietnam), Dr. Madeleine Ntibishimirwa (Burundi), Ms. Iis Sysmsiah (Indonesia) and Dr. Yang Xiaoe (China).

Dr. V. Nayudamma Memorial Award, 1994: Dr. K. Kasturirangan, Chairman, ISRO & Space Commission.

Dr. Kurien Award for Excellence in Dairying (Indian Dairy Association): Mehsane Coop. Milk Producers Union Chairperson Kotbhai R. Choudhri and its former M.D., S.C. Bhatt. (Rs. 100,000).

Biennial Award, 1992: N.N. Dastur

R.D. Birla Award, 1995: Dr (Mrs) Indira Nath of AIIMS, for her work in the field of immunology and molecular biology. Rs. 1.5 lakh.

Aryabhatta Award (Astronautical Society of India): Dr. Satish Dhawan (1992) and Dr. U.R. Rao (1993) (Rs. 50,000).

ASI Awards (1992): Dr. Rajaram Nagappa, N. Sridharan Dhas, Prem Shankar Goel, Dr. B.H. Subbaraya, K. Narayana and Dr. M.G. Chandrasekhar (Rs. 10,000 each). 1993 awards: Prof. I.G. Sarma, Dr. (Ms). Indira Rajagopal, Dr. R.S. Rao, Air Commodore R. Gopalaswami.

Humboldt Research Award (Germany): Prof. Rajpal S. Sirohi, IIT, Madras (Rs. 23 lakhs).

INSA Award 1995: Anil Kumar Bose Memorial Award 1995-Dr. P.P. Chakrabarti, Kharagpur, INSA medals for young scientists for 1995: Jane Alam, Mohua Banerjee, Calcutta, Dr. Amalendu

Chandra, Kanpur, Dr. Indranil Das, Indore, Dr. Sunil Abraham David, Bangalore, Dr. Ashish Ghosh, Calcutta, Dr. Jayadeva, New Delhi, Dr. Sanjay Kumar, Palampur, Dipankar Manna, Ms. Sushmita Mukherjee, Hyderabad, Dr. C. K. Mukhopadhyay, Cleveland, Dr. B. Srinivasa Murthy, Kharagpur, Dr. K. Porsezian, Madras, Dr. Riddhi Shah, Bombay and Dr. Qudsia Tahseen, Aligarh

INSA-Vainu Bappu Memorial Award, 1995: Prof. S.M. Chitre, TIFR, Bombay; J.C. Bose Medal-Prof. A.N. Bhaduri, IICB, Calcutta; Valdiya, JNCASR, Bangalore; Syed Husain Zaheer Medal-Prof. V. Ramamurthi, IIT, Madras.

Distinguished Scientist: Honour bestowed by multinational DuPont on Indian-born scientist Dr V.N. Mallikarjun 'Malli' Rao.

Fellow of the Royal Society: Dr. Gurudev Khush of India, Principal plant breeder at IIRI, Manila, for his work in improving natural knowledge.

G.M. Modi Science Award: Prof. C. S. Seshadri, Mathematician, (Rs. 101,000).

Dr. B.C. Roy National Award, 1994: (Medical Council of India): Award for eminent medicalman - Dr. A.K. Sinha, Patna (posthumously) and Dr. B. Ramamurthy, Madras. (Rs. 100,000)

Vasantrao Naik Award (ICAR): A Dharwad Agriculture 'Varsity team of scientists under G.D. Radder, for developing technologies to combat drought in N. Karnataka. Rs. 100,000.

ICAR Award (for team research): shared by CIFT and CICFRI scientists Dr. K. Gopakumar, P. Vasudeva Prabhu, P. Madhavan, and Dr. K.G. Ramachandran Nair, for research on fishery waste utilisation (Rs. 50,000).

Satyendranath Bose Medal, 1995: (Indian National Science Academy): Prof. R. Rajaraman, School of Physical Sciences, JNU.

Dhanvantari Award, 1995: Vaidyaraj Brihaspati Dev Trigura, well-known Ayurvedic physician. (1994: Prof. J.S. Bajaj, an authority on diabetes).

French Frank J. Malina Astronautics Medal, 1993: Prof. U.R. Rao.

Homi Bhabha Award, 1994: Dr. T. Gnanasekaran (Indira Gandhi Centre for Atomic Research, Kalpakkam) & R.I.K. Moorthy (BARC) Rs. 50,000.

Javed Husain Prize for Young Scientists, 1993: Paul Derek Beer (UK). This biennial award instituted in 1984 is given by UNESCO to a scientist below the age of 35. The award is named after its donor, the Indian physicist Dr. Javed Husain, presently Professor of Physics, Aligarh Muslim University. Dr. Beer, 33, Fellow of Wadham College, Oxford won the award for research concerning the syntheses, co-ordination chemistry

and electrochemical properties of ligand molecules.

Science Academy Award: Trieste-based Third World Science Academy's international award for physical science, to Prof. R. Cowsik, director of the Indian Institute of Astrophysics, Bangalore.

CSIR Technology Award, 1995: Sibnath Maity, CMRI, for outstanding contribution in mining technology.

Literature

Jnanpith Award, 1994:

Prof. U. R. Ananthamurthy, Kannada writer in recognition of his outstanding contribution to the enrichment of Indian literature. Rs. 250,000.

National Book Awards, 1994 (New York):

William Gaddis (his second fiction award)

for *A Frolic of His Own*; Sherwin B. Nutland, (non-fiction) *How We Die: Reflections on Life's Final Chapter*; Petry award to James Tate for *Worshipful Company of Fletchers*.

Bhima Award, for children's literature: Prof. S. Sivadas, for *Keeyo Keeyo*, Rs. 10,000.

T.S. Eliot Prize for Poetry: Paul Muldoon, a Northern Irish poet, for his collection, *The Animals of Chile*. \$8,000.

Monismanien Swedish Literary Prize: Taslima Nasreen.

Sarala Award, 1994: Prof. Pathani Patnaik, for his contribution to Oriya literature. Rs. 5000.

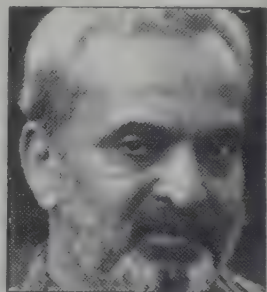
Lalithambika Antharjanam Award, 1995: Prof. S. Guptan Nair. Rs. 30,001.

National Book Critics Circle (N.York) 1994: Fiction to Carol Shield's *The Stone Diaries*; General: The Rape of Europa by Lynn H. Nicholas; Poetry Prize: Rider by Mark Rudman; Biography: Mikal Gilmore's *Shot in the Heart*.

David Cohen Prize: Harold Pinter, playwright and screenwriter. £30,000 (\$45,000). (Awarded to living British writer, every two years, to recognise an entire body of work).

Children's books Awards, 1994: (Children's Book Trust): Ira Sakena for *Gajmukta Ki Talash* (general fiction. Rs. 10,000); Kamala Sharma for *Bharat Ki Ekta Ke Sutradhar*, *Adi Shankaracharya* (Culture and heritage category); Parchuran for *Bharatiya Vanya Jivan* (natural science category); Minakshi Swami for *Sampurna Vyaktitva Vikas Ke Liye Yoga* (non-fiction/information category). Rs. 10,000.

Maharashtra Foundation (of USA) Awards:



U R Ananthamurthy

Poet Narayan Surve and scholar M.P.Rege awarded lifetime achievement prizes (Rs. 200,000 each).

Popular Prakashan gets an Award (Rs. 100,000) for publishing the periodicals (Navbharat, Ajcha Sudharak and Marathi Sansodhan Patrika) Rs. 50,000 each.

Ranganath Pathare for his political novel *Tamrapat*. Anuradha Patil, A.H.Salunkhe, Hussain Jamedar. Rs. 25,000 each.

Cervantes prize for Literature: Peruvian writer Mario Vargas Llosa.

Padmarajan Prize for the best Malayalam Short story of 1994: Sethu's *Uyarangalil* Rs. 10,000.

Muttathu Varkey Award, 1995: Kovilan (*Thottangal*) Rs. 33,333.

International Poet of Merit (Intl. Sqciety of Poets, USA): Dr. T.K. Ravindran. \$5,000.

Poet Laureate of USA: Robert Hass (*Field Guide, Praise, Human Wishes*).

Ramakrishna Dalmia Shreevani Alankaran, 1994: Prof. N.S. Ramanuja Tatacharya, for his contribution to Sanskrit literature. Rs. 2 00,000 (first award).

Poet of the Year, 1995: (Inter. Soeicty of Poets, USA): Hirday Paul Singh. *Udaas Rishton Ke Shahr*.

AT & T Award (The non-fiction equivalent of the Booker Prize): Mark Hudson for *Coming Back Brockens: A Year in a Mining Village*.

Author of the Year (The Ame. Society of Journalists and Authors): Alan Levy, editor-in-chief of *The Prague Post*, for his book *The Wiesenthal File*.

Best Punjabi Journalist, 1994-'95 (Punjabi Academy): S.Manjit Singh. Rs. 21,000.

Utkal Ratna Award (Orissa): Justice- Ranganath Mishra for his contribution to Oriya literature.

Hedgevar Award: V.Krishna Sarma, Sanskrit scholar. Rs. 100,000.

Orden De Francisco De Miranda (Venezuela Govt): V.S. Naipaul.

Basheer memorial Award, 1995 ("Pravasi"): Kovilan (V.V.Ayyappan) Rs. 35,000.

Shiksha Puraskar, 1993-'94 (Central Hindi Directorate): Dr. Harish Chandra Vyas for *Pariyavaran Shiksha*.

Juan Rulfo Prize for Latin American and Caribbean Literature: Nelida Pinon, Brazilian writer. \$100,000.

Joshua Award: O.N.V. Kurup. Rs. 100,000.

Bankim Chandra Smriti Puraskar: Sandipan Chattopadhyay.

Vallathol Award, 1995: M.P.Appan, Malayalam poet.

N.V.Prize: M. Mukundan, *Deivathinte Vikrithikal*.

Tagore Literary award, 1995: Malati Devi

Tony Awards

Sunset Boulevard, British star composer *Andres Lloyd Webber's musical, conquered Broadway in June, 1995.

With only one musical - a review of rock tunes called *Smokey Joe's Cafe* - for competition, *Sunset Boulevard* won seven Tony awards (Broadway's answer to Hollywood's Oscars), including best musical, best score, best book, best scenic design and best lighting.

Its star Glenn Close was named the year's best actress in a musical. It was Close's third Tony award and she got it for playing the doomed fading Hollywood star Norma Desmond in the musical version of Billy Wilder's classic film. The man who played her deadly but loyal butler, George Hearn, was named best featured actor in a musical for the role created by Eric Von Stroheim.

Love! Valour! Compassion! - Terrence McNally's play about a group of gay men on a series of summer weekends - was named the year's best play.

British actor Ralph Fiennes, passed over for Oscars for his work in *Schindler's List* and *Quiz Show*, won the Tony for best actor in a play for his performance in an imported London revival of *Hamlet*.

The award for best leading actor in a musical went to Hollywood star Matthew Broderick for his performance as the man on the rise in a revival of *How to succeed in business without really trying*.

Broadway legend Harold Prince won his 20th Tony award for his direction of *Show Boat*, which was named the year's best musical revival.

The revival of the Jerome Kern/Oscar Hammerstein musical won three other awards- Gertha Boston was named best featured actress in a musical, Florence Koltz won best costumes and Susan Stroman won for best choreography.

Broadway newcomer Cherry Jones was named the year's best actress for her performance as the betrayed Heiress in the revival of the 1946 play *The Heiress*, based on Henry James's novel *Washington Square*.

Choudhury, for her work in in promoting literacy among women.

Moortidevi award, 1994: Shivaji Sawant, noted Marathi writer for his novel *Mritunjaya*. Rs. 51,000.

Antico Fattore Literary Prize (Italy): Mario

Vargas Llosa of Peru for *Lituma in the Andes*, a novel.

Commonwealth Writers' Prize, 1995: Louis de Bernieres of Britain (*Captain Corelli's Mandolin*). £10,000. The best first book prize: Adib Khan (*Seasonal Adjustments*), Australia-based Bangladeshi writer.

Arts & Music

Kalidas Samman 1994-'95 (M.P.Govt): Miss Shanta Rao, renowned danseuse. ('93-'94: B.V. Karanth, noted theatre personality for his outstanding contribution in the field of creative arts. Mrs. Padmavati Shaligram Gokhale, for Classical Music.) Rs. 100,000

Avadh Ratna award: Lata Mangeshkar. Rs. 200,000

11th Lata Mangeshkar award: Music director Anil Biswas. Rs. 100,000

Yash Bharati award (U.P.Govt): Amitabh and Jaya Bachchan.

Prem Nasir award, 1994: K.J. Jesudas. Rs. 30,000.

Top Oscar (British music industry): Elton John, veteran rock star.

Grammy awards: Bruce Springsteen, veteran rocker, won four awards including 'Song of the Year' for "Streets of Philadelphia". New comer Sheryl Crow got 3. Crooner Tony Bennet took Grammys for best traditional pop vocal performance. Boyz II Men got 2 prizes; so did Seattle's "Soundgarden". In Rap: Trio Salt 'N' Pepa and Soloist Queen Latifah.

Soul Train Music awards: Anita Baker, Boyz II Men, and Barry White.

Sangeet Natak Akademi fellowships: Yehudi Menuhin (Violin), Ustad Bismillah Khan (Shehnai), Maheswar Neog (Scholar from Assam).

Swaralaya Puraskar, 1994: Dr. Semmangudi B. Srinivasa Iyer.

Entertainer of the Year trophy (Academy of Country Music award): Reba McEntire; Top album: Tim McGraw for "Not a Moment Too Soon". (Also top new male artist); Top male vocalist: Alan Jackson.

Prince of Asturias Prize: Fernando Fernan Gomez, stage and screen personality, for his extensive contribution to the arts. 5 m. peseta=\$40,000 Hispanic world's equivalent of the Nobel).

Handel Prize: Winston Dean, a British specialist on the 18th century composer Handel.

Praemium Imperiale Prize, 1995 (Japan Arts Association): Sir Andrew Lloyd Webber (music); Matta (painting); Christo and his wife and co-worker Jeanne-Claude (sculpture); Nakamura Utaemon VI (theatre /film); Renzo Piano (architecture) 15 m. yen each (\$175,000).

William Schuman Award (Columbia 'Var-

sity): Hugo Weisgall, for lifetime achievement of the composer. \$50,000.

International Jazzpar Prize (Danish Jazz Center): American Pianist Geri Allen. First woman to win it. 200,000 kroner (\$36,000).

49th Avignon Festival, France: Awards to 3 great gurus Birju Maharaj (Kathak), Kelucharan Mahapatra (Odissi), and Vempati Chinna Satyam (Kuchipudi).

Muhammad Rafi award (National Integration and Cultural Society): Anuradha Paudwal. Rs. 25,000.

Marian Anderson Award, 1995: Michelle De Young, a 27-year old mezzo soprano.

Hamada award, 1995: (Edinburgh Festival): Mark Morris, American dancer.

Kumar Gandharva Samman: Rajan Mishra, and Sajan Mishra, noted vocalists.

Dinanath Pratishthan award (Instituted by Lata Mangeshkar) M.S. Subbulakshmi. Rs. 50,000.

Films

National Film Awards, 1994: Best feature film: *Unishe April* (Bengali), directed by Rituparno Ghosh. Rs. 50,000 and Swarna kamal; best actor: Nana Patekar (*Krantiveer*), Hindi; best actress: Debasree Roy (*Unishe April*), Bengali; best supporting actor: Nagesh (*Nammavar*), Tamil; best supporting actress: Ashish Vidyarthi (*Drohkaal*), Hindi; Indira Gandhi Award for the best first film of a director Gnana Rajasekaran (*Mogha 'Mull*), Tamil; Nargis Dutt prize for national integration: Jabbar Patel (*Mukta*), Marathi; Best film critic: Rashmi Doraiswamy; Best Male Playback Singer: Unnikrishnan (*Pavithra*), Tamil; Best Female Playback singer: Sornalatha, (*Karu-thamma*), Tamil; Best Music Director Ravi (*Sukrutham and Parinayam*), Malayalam/Johnson (for backgrand score of *Sukurutham*); Best lyricist Award: Vairamuthu (*Pavithra* (Tamil); Best technical awards: *Thenmavin Kombath* (cinematography-K.V. Anand and art direction-Sabu Cyril); Screeplay Award: M.T. Vasudevan Nair (*Parinayam*) Malayalam, -



Nana Patekar



Debasree Roy

Cameraman-S.Kumar; Special Jury Award: *Paramvir Chakra, Swaham*.

National Non-feature Film Awards: Best film: *Rasayatra*, by Nandan Kudhyadi, a film on vocalist Mallikarjun Mansur. Anand Patwardhan's *Father, Son and Holy War* (Part-I Trial by Fire and Part II Hero Pharmacy) won two awards, one for best film on social issues and another for the best investigative film. *Maha-nagri* directed by Kireet won the best animation film while *Clint* by Shiv Kumar, which came in for special mention by the chairman and jury, was selected as best film on family welfare. The special jury award went to Saumitra Sarkar for his film *Games we played in our youth* described as a whimsical poem which delights in the surprise of shifts and displacement.

(More National Awards elsewhere)

Filmfare Awards: Best film—*Hum Aapke Hai Kaun*; Best actress—Madhuri Dixit; Best actor—Nana Patekar; Best director—Sooraj Barjatya; Best music director—the late R.D. Burman; Best lyricist—Javed Akhtar; Best playback singers: Kumar Sanu & Kavita Krishnamurthy; Best supporting actor—Jackie Shroff; Best supporting actress—Dimple Kapadia; Best villain—Shah Rukh Khan; Best comedian—Shakti Kapoor; Lifetime achievement award—Shammi Kapoor & Waheeda Rahman; Special Filmfare trophy—Lata; Critics award for best director—Shekar Kapoor; Best performer—Farida Jalal.

Lifetime achievement Award (South India): Gemini Ganesan.

Dr. Rajkumar Award 1993-94 (Karnataka Govt): K.S. Ashwath, Kannada film actor. Rs. 10,000.

Puttanna Kanagal Award, 1993-'94 (Karnataka Govt): Siddalingiah, film director, Rs. 1 lakh.

Aravindan Puraskaram: Bikram Singh, Director of 'Tarpan', (Rs. 10,000).

Kerala State Award for best Malayalam feature film: *Parinayam*; Best director—Shaji N. Karun; Actor—Tilakan; Actress—Shanthikrishna. J.C. Daniel award for outstanding contribution to Malayalam cinema—P. Bhaskaran, lyricist-director (Rs. 50,000).

Padmarajan Prize: Best film—*Parinayam* (Rs. 50,000).

Lifetime Achievement Award (Sharda Kala Kendra): Jankidas, the oldest actor of the silver screen, 85.



George Burns with Ann-Margret at the Cesar award ceremony.

Screen Panasonic Awards: *Hum Aapke Hai Kaun* bagged 7 awards (best film, best actress, best director, singer, screenplay, editing) Best actor—Nana Patekar; Singer—Kumar Sanu; Lifetime award—Ashok Kumar

Best Film Award (Prix due Jurg) (Intl. film festival, France): *Ilayum Mullum* (Malayalam).

Felix award (European film academy): *Lamerica*, Italian director Gianni Amelio's road movie, the best European film.

Lifetime Achievement Award: Roberto Bresson, 93, French film director. Agnes Merlet and Janos Szasz shared the honours in the category for young filmmakers.

New York Film Critics Circle's best picture award, 1994: Robert Redford's 'Quiz Show'. Best actor: Paul Newman; Best actress: Linda Fiorentino.

Natpac Award for Best Asian Film (Rotterdam film festival): *Vidheyan* (International Network for Promotion of Asian Cinema).

Golden Bear Award (45th Berlin International film festival) Paul Newman for best actor. Best director: Richard Linklater.

Cesar Awards of France: La Reire Margot 5 awards, including best actress for Isabelle Adjani; *Les Roseaux Sauvages* - 4 awards, including best French film and best director Andre Techine; best foreign film: Mike Newell's *Four Weddings and a Funeral* Honorary Cesars to Steven Spielberg and Gregory Peck.

Screen Actors Guild Awards: Tom Hanks (*Forrest Gump*); Jodie Foster (*Nell*). Lifetime achievement: George Burns.

People's Choice Awards, Los Angeles: Tom Hanks movie - *Forrest Gump* TV honours *ER* and *Home Improvement*. Actor: Tim Allen.

Prix Futura Berlin Asia Prize: Video documentary 'Identity' of Dr. Anjali Monteiro and Dr. K.P. Jayasankar of Tata Inst. of Social Sciences, Bombay. DM 10,000.

Chevalier Award, the Order of Arts and Literature (France): Shivaji Ganesan.

Bafta Awards (British Academy of Film and

Television Arts), 1995: Best film - *Four Weddings and a Funeral* and 4 other awards: Best director (Mike Newell); best actor (Hugh Grant), best supporting actress (Krislen Scott Thomas) and the Llyods Bank award for the most popular film.

Pulp Fiction got two Awards: Best supporting actor (Samuel L. Jackson) and Best original screenplay (Quentin Tarantino and Roger Avary); best actress: Susan Sarandon (*The Client*); best foreign language film: *To Live* (Chinese); A special fellowship: Billy Wilder, Hollywood veteran director.

Edgar Awards (given by mystery writers of America): Best film - *Pulp Fiction*; best TV feature *Crackers*.

Fipresci Award (Intl. Film Critics Asso.): Adoor Gopalakrishnan (*Vidheyan*).

20th Century's Best Films: Orson Welles classic *Citizen Kane*. (Poll by Bri. Magazine *Time Out*); best actor: Marlon Brando; best actress: Katharine Hepburn; best director: Alfred Hitchcock.

Cannes film festival (48th) Awards: Golden Palm-Emir Kusturica's *Underground*; Grand Jury Prizes - Theo Angelopoulos' *Ulysses Gaze*; Other Jury Prize Christopher Hampton's *Carrington*, and Xavier Beauvies' *N'oublie pas que tu vas mourir*; best actor-Jonthan Pryce (*Carrington*); best actress: Helen Mirren (*The Madness of King George*)

Grand Prix Des Ameriques: Gerard Depardieu, French actor.

The Spirit of Freedom Award (Jerusalem Festival): Anand Patavardhan's documentary *Father, Son and Holy War*.

Air Canada People's Choice Award: *Antonia's Line*, a British Belgian-Dutch film directed by Marleen Gorris.

Golden Panda Wildscreen Award (or Green Oscar): Mike Pandey, Delhi for his film 'The Aaraguja' (the first Indian to receive the honour).

Media

Blue Pencil Award, 1994 (National Asso. of Govt. Communicators, USA): 3rd Prize to Govt. of India publication "India: a dynamic democracy". Honourable mention: "Muslims in India", another government publication.

World Press Photo 1994 Prize: James Nachtwey of USA: Photo on Hutu massacre in Rwanda. Rs. 2,700,000.

G.K.Reddy Memorial Award: Aroon Purie, editor of *India Today*. Rs. 50,000.

PUCL Award: (People's Union of Civil Liberties journalism for human rights award): Sainath of Bombay. Rs. 20,000 (for his coverage of the sufferings of 'ecological refugees'). Special mention: Oinam Sunil of Manipur.

Journalists of the Year (Lions International): George Varghese of UNI, Guriqbal Singh of *Hindustan Times*. Rs. 10,000.

B.D.Goenka Award for excellence in journalism, 1994: The Pranjoy Roy-Vinod Dua television team and Mr Jehan Daruwalla, Editor of *Bombay Samachar*.

Pulitzer Prizes, 1994: 'Public service journalism - *The Virgin Islands Daily News* of St. Thomas; Spot news reporting - *Los Angeles Times*; Investigative reporting - Brian Donovan and Stephanie Saul of *Newsday*; Explanatory journalism - Leon Dash (a writer) and Lucian Perkins (photographer) of the *Washington Post*; National reporting - Tony Horwitz of the *Wall Street Journal*; International reporting - Mark Fritz of Associated Press; Spot news photography Carol Guzy of the *Washington Post*; Feature photography prize - The Staff of the Associated Press. \$3000 each. The first one gets a gold medal.

Reuben Award: Outstanding cartoonist of the year: Gary Larson.

Kalinga Award (UNESCO): Dr. Nikolai Nikolaevich Drozdov, Russian TV journalist and bio-geographer, for popularising science in society. £ 1000.

Peace & Humanism

French Human Rights Prize: Taslima Nasreen.

Human Rights Award (Berne-based Foundation for Freedom and Human Rights): Swami Agnivesh, president of Bandhua Mukti Morcha, for his fight for the basic human rights of the most deprived people in India. Swiss Francs 10,000 (Rs. 200,000).

Sakharov Prize (European Parliament): Taslima Nasreen. \$12,000.

UNESCO Peace Prize, 1994: King Juan Carlos of Spain and former American President Jimmy Carter.

Vivekananda Commendation for Peace Initiative (Vivekananda Foundation) Nelson Mandela, FW de Klerk, Bill Clinton, Jimmy Carter, Yitzhak Rabin, Yasser Arafat.

Mahatma Gandhi Peace Award, 1994 (National Federation of Indian American Associations): Morarji Desai.

Martin Luther King Peace Prize: Kim Young-Sam, S.Korean President.

Olef Palme Prize (Sweden): Wei Jingsheng, author, de-



Morarji Desai

tained Chinese dissident for his contribution to the democracy movement in China.

Special Mahatma Gandhi Prize for Peace, 1994 (M.Gandhi Foundation of Oslo): Nelson Mandela and Mikhael Gorbachev.

12th International Niwano Peace Prize, 1995 (Japan's Niwano Peace Foundation): Dr. M.Aran, Rajya Sabha member and Gandhian (First Indian) 20 m. Yen.

Gandhi Peace Award (Norway's Mahatma Gandhi Peace Foundation): Tulshidas Jadhav, Chairman of freedom fighters high power committee.

Onassis Intl. Award: Boutros Boutros Ghali. (in memory of Alexander Onassis, son of Aristotle Onassis) \$250,000.

Indira Gandhi Soliderity Award, 1994: Niranjana Patnaik (Orissa minister).

Jawaharlal Nehru Award for Intl. understanding, 1993: Ms. Daw Aung San Suu Kyi. Rs. 1,500,000.

Martin Ennals human rights Award, 1995: Asma Jahangir, lawyer from Pakistan.

Intl. Human Rights Law Group's Award: Wole Soyinka.

Indira Priyadarsini Award: Satyanarayanan Reddy, Orissa governor, for promoting international peace.

M.A.Thomas National Human Rights Award, 1995 (Vigil India Movement): Balraj Puri, human rights activist, and C.T.Kurien, economist. Rs. 100,000.

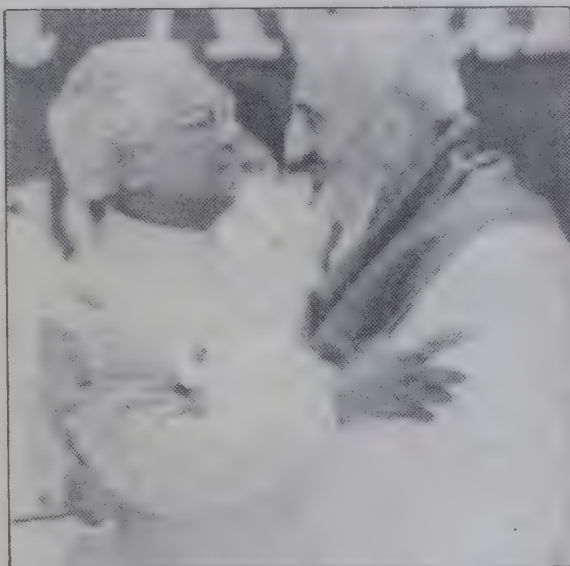
Rajiv Gandhi National Sadbhavana Award, 1994: Mohammad Yunus, former chairman of Trade Fair Authority of India. Rs. 250,000.

Mahatma Gandhi World Peace Award: Dr.Hogen Fukunaga of Japan, lecturer, poet and author. \$100,000.

Indira Gandhi Award for National Integration, 1994: The late Punjab CM Beant Singh, Nagaland Gandhi Ashram founder secretary Natwar Thakkar. Rs. 1,51,000 each.

Robert Kennedy Human Rights Awards, 1995: Doan Viet Hoat and Nguyen Dan Que, imprisoned human rights activists of Vietnam; and Kailash Satyarthi of India, head of South Asian Coalition on Child Servitude.

Kabir Puraskar Awards, 1995 (for promotion of communal harmony): Logjam Tondon Singh of Manipur, Mrs.Mithlesh Yadav of Aligarh (Rs. 20,000 each); Ismail Sultan Gaddekar of Karnataka, Siraj Quaraishi of UP (Rs. 10,000 each).



K. R. Narayanan with Muhammad Yunus, winner of Rajiv Gandhi Sadbhavana award.

Miscellaneous

Woman of the year, 1994 (American Biographical Institute): Dr. Sarada Subramanyan, director, Madras Institute of Magnetobiology.

Indo-American Society Award 1992-93: Mira Nair, for fostering Indo-US relations through her films.

Fertiliser Asso. of India Award, 1993-94: FACT, for improvement in the overall performance of the plants.

Gupta Award: S.R. Rao, marine archaeologist, who discovered a number of Harappan sites.

Justice K.S. Hedge Foundation Award, 1994: Medha Patkar. Rs. 100,000.

FICCI Award: Indian Bank, for institutional initiative in rural development.

Kerala Government Farm Awards: Nelkathir award-Puruthikavu Nedlulpadaka Padasekhara Samiti of Palakkad. Kerakesari Award: Philip Mathew of Vechoor, Kottayam.

Karshakothama Award for mixed cropping: E.A. Georgekutty of Kunthalamppara. (Rs. 100,000 each).

Environment Award, 1994 (Rotary India): Pollution Control: Tarun Bharat Sangh, (Alwar-based voluntary organisation of rural youth).

Man of the Year, 1994: (*Time Magazine*): Pope John Paul II.

Bharat Srestha Award (Critics Club of India): Mother Teresa, Mithun Chakravorty, Manoj Mitra, Biplab Chatterjee, Shabana Azmi, Ganesh Paul, Sunil Ganguly, Madhabi Chakravorty, Soha Sen, Bhupen Hazarika, Amjad Ali Khan, Nirendra Nath Chakravorty, Amala Sankar, Sanjukta Panigrahi.

Airline of the Year 1994 (Hotel and Food Service Review): Lufthansa.

Best Corporate Manager of the year in Large Sector, 1994: S.K. Manglik, CMD of ONGC.

Businessman of the Year 1994 (*Business India*): Brijmohan Lall Munjal (Hero Cycle).

Amity Award, 1994 (Foundation for Amity and National Solidarity-FANS): Nani Palkhiwala.

Indira Gandhi Award for Excellence, 1993 (Shiromani Institute): B.L. Chadha, CMD of Syndicate Bank.

Financial Express Award, 1994: Dr. K.N. Raj (Rs. 50,000).

Indira Gandhi Excellence Award 1994: B. Subodh, MD of The First Custodian Fund of India Ltd. for his contribution to the field of capital markets.

Man of the Year (American Biographical Institute)-1994: R.K. Balasubramaniam.

Femina Miss India 1995 (Universe) Manpreet Brar; Miss India (World): Priti Mankotia; Miss India (Asian Pacific Quest): Ruchi Malhotra.

Achutha Menon Memorial Prize (the first): Dr. Krishna Bharadwaj for his book "Accumulation, exchange and development - essays on Indian Economy" Rs. 100,000.

Oshikawar Award, 1994: (Asian Productivity Organisation): Dr. P.M. Mathew, for the best research work relating to productivity in small-scale industries. \$ 4,000.

India Young Business Achiever, 1994: Achal Bakeri.

Sulabh Award (Sulabh Intl.): T.N. Seshan, for his contribution in cleansing the electoral system. Rs. 5 00,000.

Woman of the Year (International Women's Asso.): Mrs. Gita Ram, who spearheaded the growth of crafts.

JRD Tata National Award (Humanist National Award Committee): K. Ravidranathan Nair, industrialist and film producer.

Green Ribbon political award (Britain): Medha Patkar.

Michael John Memorial Lecture Gold Medal: Ratan N. Tata.

Business Leadership Award, 1994 (Madras Management Association): K.M. Mammen Mappillai, MRF Chairman.

Rashtra Bhushan Awards, 1994 (FIE Foundation): T.N. Seshan and Ratan Tata.

Netaji Award: Mother Teresa.

Templeton Prize (for Progress in Religion), 1995: Paul Davies, a mathematical physicist who has written on interconnections between science and technology. \$ 1 m.

Rashtriya Seva Dharma Awards for Acharyas, 1993 (Bharatiya Vidya Bhawan) Shivappa Dundappa Dhelij, Gurlapur (Karnataka), Chandhari Bhaskar Chindhu, Jalgaon (Maharashtra), Dr. Mrs. Ravada Jaya

Venugopala Rao, Madras. Rs. 25,000, 10,000 & 10,000 respectively.

UN Population Award, 1995: The head of the International Planned Parenthood Federation and an African group that campaigns against female genital mutilation.

Punyabhushan Award (of the 'tridal' social organisation): B.K.S. Iyengar, yoga expert. Rs. 25,000.

Indira Priyadarshini Vrikshamithra Award, 1992: B.N. Singh Rathore (M.P) in the individuals category; A.R. More (Maharashtra), The Sangwa Primary farm forestry cooperative society of Udaipur, Rajasthan and the Gram Panchayat, Gawadawadi, Pune, Maharashtra also awarded.

Educational Institutions: Maherishi Balmiki Laghu Madhyamik Vidyalaya, Deoriya, U.P., and the Sanskriti Sanvardhan Mandal, Nanded, Maharashtra.

Voluntry Agencies: Santal Pargana gramodyog samiti, Bihar, and the Irula Tribal women's society, Chengalput, Tamilnadu. Rs. 50,000 each.

Laxmi N. Menon Award: Prof. Nandadasa Kothagode of Sri Lanka for anti-alcoholism addiction work.

Man of the Year, 1995 (American Biographical Association): Dr. Paulose Mar Gregorios.

Dr. Rajendra Prasad Puraskar (of ICAR) For technical books in Hindi for 1992-93: Dr. A.M. Michael, Vice Chancellor of Kerala Agricultural University.

Simon Bolivar Award, 1995: Bill Clinton, US President, for his efforts for the integration of the Americas.

Rajiv Gandhi National Unity Award, 1995: Narendra Singh Bakshi.

HUDCO Award for the best housing agency, 1994-95: Kerala State Housing Board.

Goldman Environmental Prizes: Aurora Castillo, a Latina woman; Ken Saro-Wiwa, Nigerian author; Emma Must (UK); Yul Choi (S. Korea); Noah Idechong (Palau); And Ricard Navarro (El Salvador). \$ 75,000 each.

The Hubbard Medal (National Geographic Society): Jane Goodall, the British scientist.

Indian Merchants Chamber Platinum Jubilee Endowment Award, 1994: Fr. Abraham Kaippanplakkal, Palai, and Prof. V.S. Natarajan, Madras. Rs. 51,000 each.

Pritzker Architecture Prize, 1995: Tadao Ando, Japan. \$100,000.

Vegetarian of the year, 1994 (Vegetarian Society): Menaka Gandhi.

Yudhvir Memorial Award, 1995: Dr. Manmohan Singh (Finance Minister).

Hollywood Walk of Fame Star: David Copperfield.

Best Sportsman of India, 1994

(Mathrubhoomi Sports Masika): Sachin Tendulkar. Rs. 100,001.

Miss Universe, 1995: Chelsi Smith, 21, Miss USA. First Runner-up: Manpreet Brar, 21, Miss India, 2nd runner-up: Lana Buchberger, 20, Miss Canada.

U Thant Peace Award: Dr. L.M.Singhvi, India's High Commissioner in London.

Gold Heritage Award (Pacific Asia Travel Association): Delhi, for its novel and popular project 'Delhi Haat'.

Dr. Ambedkar National Award, 1993: National Institute of Social Work and Social Sciences of Bhubaneswar.

UNEP Sasakawa environment prize 1994: Dr. M.S.Swaminathan and Paul and Anne Enhrlich of USA.

Carlsberg Architectural Prize: Juha Leiviska, Finnish architect. \$ 270,000.

J.L.Nehru Fellowship: V.R.Mony, Prof. R.K.Kochar.

Lokmanya Tilak Samman, 1995: T.N.Seshan Rs. 100,000.

David Mahoney Prize (Harvard Mahoney Neuroscience Institute): Ronald and Nancy Reagan, for their candour about the former President's fight against Alzheimer's disease.

Medico Par Excellence Award (Dr. MGR Medical 'Varsity): Dr. Balamurali Krishna Ambati, 17.



T.N.Seshan

Charles V Prize (Foundation of the European Academy of Yuste): Jacques Delors. \$ 400,000.

Rajbhasha Awards (Home Ministry) for 91-92 & 92-93: The Indo-Tibetan Border Police (1st), Central Industrial Security Force (2nd) and Central Reserve Police Force (3rd).

Hari Om Ashram Trust Award, 1993-94: Dr. A.N.Moorthy, Rs. 20,000.

Sulabh Sanitation Award (Rajiv Gandhi Memorial): All India Institute of Hygiene and Public Health, Calcutta. Rs. 2 00,000.

National Panasonic Award: Bengal Rural Welfare Science (Calcutta) \$20,000.

Fukuoka Asian Cultural Prizes: Prof. Naboru Karshima, President of the International Association of Tamil Research. Grand Prize Prof. Koentjaraningrat, Indonesian anthropologist.

Lions International Humanitarian Award: Sonia Gandhi, chairperson of Rajiv Gandhi Foundation \$200,000.

National Adventure Awards, 1994 (for excellence in the field of adventure): The 19

Indian members of the successful Indo-Nepalese Women's Everest Expedition, which scaled the Everest in 1993. Ms. Bachendri Pal, first Indian woman everester; Dicky Dolma, 19, of Himachal Pradesh, the youngest woman in the world to conquer Everest; Ms. Santosh Yadav, first woman in the world to have scaled Everest twice; Ms. Rachel Thomas, first Indian woman skydiver; the disabled Maj. A.K.Singh for his sailing exploits; Hukam Singh for lifetime achievement in mountaineering. Rs. 50,000 each.

Bhatia Award: Sugatha Kumari, for her work towards women's advancement. Rs. 50,000.

World Council Creativity Award (World Council for Gifted and Talented Children): Prof. M.K. Raina, NCERT Professor.



Sugatha Kumari

Rajiv Gandhi Excellence Award, 1994: (Shiromani Institute, Delhi): P.K.S. Madhavan for his work in uplift of the rural poor through Action for Welfare and Awakening in Rural Environment (ANARE).

Raja Lakshmi Award, 1995 (Raja Lakshmi Foundation, Madras): Dr. Balamurali Krishna Ambati, the youngest doctor in the world at 17. Rs. 50,000.

Rajiv Gandhi National Integration Award, 1994-95: Aruna Asaf Ali, veteran freedom fighter, Dr. Khalilullah (medical science), Sheik Manozoor Ahmed (journalism), Dr. S. Farooq (Aurveda), Abid Ali Khan (engineering), Seedul Hasan (social service).

Magsaysay Award, 1995: For governmental service: Morihiro Hiramatsu, governor of Oita Prefecture, Japan, for awakening his community to self-reliant economic growth through the 'one village, one product' movement and for his spirited call for local products with global appeal.

For public service: Ms. Asma Jahangir, a Pakistani human rights lawyer for challenging Pakistan to uphold the principles of religious tolerance, gender equality and equal protection under the law.

Community leadership: Ho Ming, Tech. Taiwanese philanthropist who built more than 200 bridges in Taiwan and founder of Taiwan's Chiayi city philanthropy group, for improving rural Taiwan with good deeds and sturdy bridges over the past 25 years.

Journalism, literature and creative communication arts: Pramodya Ananta Toer, Indonesian novelist, for "illuminating with brilliant

stories the historical awakening and modern experience of the Indonesian people".

Miss Teen International: Kristen Elizabeth Hungerford of Sweden.

Dhairya-nishta Award (Maharashtra government): J.F. Ribeiro, former DGP.

"We the People" Award (UN): Alappuzha town, Kerala.

Most Outstanding Parliamentary Award, 1995: (Indian Parliamentary Group): Former PM Chandrasekhar.

Miss International, 1995: Anne Lena Hansen, 21, of Norway.

Rajiv Gandhi Manav Seva Award, 1995: J.N. Kaul, President, SOS Children's village. Rs. 100,000.

Giants Day Awards (Giants Intl.): Mother Teresa (Social work), Kiran Bedi (public admn.), Manisha Koirala and Nana Patekar (film), Dr. Ajit Phadke (medicine), Rohinton Aga (business and industry), Pandit Jasraj (music).

Dr. Ambedkar National Distinguished Service Award, 1995: Prof D.R. Singh for his contribution towards uplift of tribals.

Jamnalal Bajaj Awards, 1995: Gandhian Kashinath Trivedi (for constructive work) rural reformer G.Muniratnam, Sarvodaya worker

Vimla Bahuguna, American Gandhian Kamala Rs. 200,000.

FICCI Award, 1993-94 for family welfare: Hindustan Aeronautics Ltd, Nasik Division.

Israel Peace Medal: Bhishma K.Agnihotri, eminent Indian American jurist.

Noel Foundation/UNIFEM Awards: Life-time Commitment Award - Mother Teresa Inspiration Award - Elizabeth Glaser (posthumous), Ms.Mary Robinson, President of Ireland, Ms.Helen Suzman and Ms.Adelaide Tambo of S.Africa, Dr. Christiane Dosne de Pasqualaini of Argentina, Ms. Marianne Buggenhagen from East Berlin.

Right Livelihood Award, 1995 (often called the alternative Nobel Prize): Jointly awarded to the Serb Civic Council of Bosnia-Herzegovina, Andras Biro and his organisation the Hungarian Foundation for Self-Reliance, Silak Sivarksa of Thailand, and Carmal Budiardjo, co-founder of the Indonesian Human Rights Organisation Tapol. \$250,000 to be shared by the four.

UN Habitat scroll of honour: Gangadhar Rao Dattatri, noted urban planner, for his work in human settlements on the world habitat day.

(More awards elsewhere)

World Records

An Indonesian woman, Augustina Sulasi, 138, may be the oldest person in the world, the *Indonesian Observer*, reported in June 1995. Augustina was born in the village of Hatetabako on Halmahera Island, about 2,500 kilometres northwest of Jakarta, in 1856. She is now living in a village in northern Moluccas, it said.

Then, we have a Colombian farmer who turned 125 years on October 2, 1995. He says he fought in a Colombian civil war at the turn of the century, according to *El Tiempo*.

If his age is confirmed, Barriosnuevo has outlasted Shigechiyo Izumi of Japan, listed by *Guinness* as the oldest man. Izumi was 120 years, 237 days when he died in 1986.

Human World

Tallest Man : Haji Mohammad Alam Channa (b.1953), Pakistan & Manute Bol (b.1962), basketball player, Sudan. Both around 233 cm (7.8 ft).

Tallest Woman : Sandy Allen of Canada: (b. 1955) 231.7 cm (7.7 ft). She now weighs 210 kg.

Shortest Man : Gul Mohammed (b.1957), India 57.15 cm. Weight 17 kg.

Shortest Woman : Madge Bester (b.1963), South Africa 65 cm.

Heaviest Man : T.J. Albert Jackson (b.1941), US 445 kg. He has a 305 cm chest, and a 294 cm waist.

Heaviest Woman : Rosie Carnemolla (b. 1944). US 385 kg in 1988.

Most Children : The greatest officially recorded number of children produced by a mother is 69 by the first of the two wives of Feodor Vassilyev of USSR. In 27 confinements she gave birth to 16 pairs of twins, 7 sets of triplets and 4 sets of quadruplets.

First Siamese Twins : Chang and Eng Bunker (known in Thailand as Chan and In) born on May 11, 1811 of Chinese parents. They died within three hours of each other on Jan. 17, 1874.

First Test Tube Baby : Louise Brown (2.6 kg), delivered by caesarian section from Lesley Brown, 31, in Oldham General Hospital, Lancashire, England on July 25, 1978.

First Human Heart Transplant : was performed on Louis Washkansky, 55, at the Groote Schuur Hospital, Cape Town, S.Africa, on Dec., 3, 1967 by a team of 30 led by Prof. Chiristiaan Neethling Barnard. The donor was Miss

Denise Ann Darvall, aged 25. Washkansky died on Dec. 21, 1967.

First Artificial Heart: Dr. Barney B. Clark, 61 of Des Moines, Iowa received the first artificial heart on Dec. 1-2, 1982 at the Utah Medical Centre, Salt Lake City, Utah. Shorter by 2.03 m.

Natural World

Largest Animal: The Blue or Sulphur-bottom Whale. the largest specimen ever recorded was a female landed at Falkland Island, in 1909. She measured 33.58 m. in length.

Fastest Moving: The Peregrine Falcon, has been timed electronically at 350 km/h in 1963 in Germany while making a scoop at a 45° angle of descent.

Largest Land Animal: The African bush elephant. the average adult bull stands (3.2m) at the shoulder and weighs 6.5 tonnes.

Fastest Land Animal over short distance (i.e. 548.4 m): the Cheetah or Hunting Leopard of the plains of East Africa, Iran, Turkmenia and Afghanistan, with a probable maximum speed of 96-101 km/h over suitably level ground.

Tallest Tree: The redwood species near the coast of California. The tallest living example is the "Tallest Tree" in Red Wood Creek Grove, California, discovered in 1963. It is 112.1 m tall and has a girth of 13.38 m.

Largest Forest: The vast coniferous forests of the northern Russia lying mainly between latitude 55° N, and the Arctic Circle. The total wooded area amounts to 1100 million ha (25 percent of the world's forests), of which 38 percent is Siberian larch.

Greatest Rainfall (24 hrs): 1870 mm Cilaos La Reunion, Indian Ocean, March 15-16, 1952.

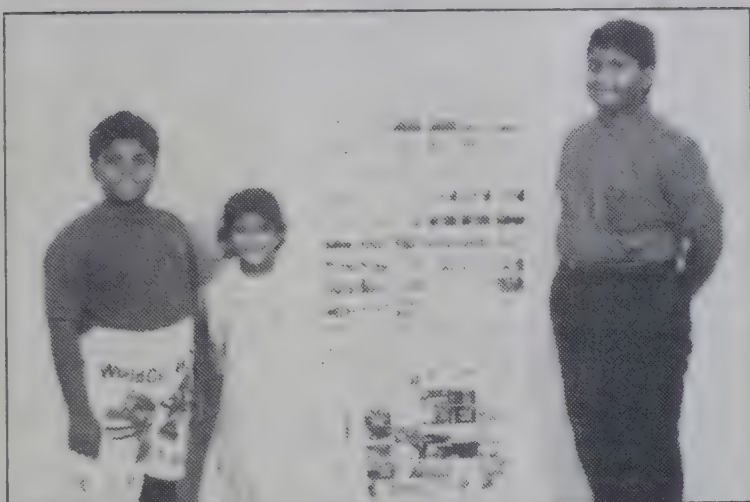
Maximum Sunshine: Annual average 97 percent (over 4300 hrs), eastern Sahara. Hottest place: (Annual mean): Dallol, Ethiopia: 34.4°C (1960-66).

Coldest Place: Polus Nedostupnosti, pole of Antarctica, -57.8°C.

Largest Ocean: the Pacific; representing 45.8 percent the world's oceans, it covers an area of 166,820,200 sq.km.

Deepest part of Ocean: in the Marianas Trench in the Pacific Ocean; has a depth of 5960 fathoms (10,906 m) or (10.91 km).

Largest Gulf: the Gulf of Mexico, with an area of 1,500,000 sq.km, and a shoreline of 4990 km from Cape Sable, Florida, to Cabo Catoche, Mexico.



Success on the cards: The Nalloor children, Thomas John(9), Anna Mary John(7), and Joseph John(14) of Kerala living in Dubai possess a collection of 32,000 phone cards from 75 countries - the biggest collection of its kind. They have held exhibitions and formed a club to propagate the hobby.

Largest Land Mass: The Eurasian land with an area (including Islands) of 53,698,000 sq.km.

Smallest Land Mass: the Australian Mainland with an area of 7,618,493 sq.km which, together with Tasmania, New Zealand, New Guinea and the Pacific Islands (Oceania).

Largest Peninsula: Arabia with an area of 3,250,000 sq.km.

Largest Island: Discounting Australia, the largest island is Greenland (Re-named Kalaallit Nunaat, May 1, 1979), with an area of about 2,175,000 sq.km.

Highest Mountain Peak: The Eastern Himalayan peak Mount Everest 8863 m (new satellite measurements of Oct. 1987) above sea level on the Tibet-Nepal border, the peak was named after Col. Sir George Everest (1790-1866), formerly Surveyor General of India. According to 1993 expedition by Baume and Mercier, Mount Everest has been found shorter by 2.03m.

Largest Desert: The Sahara in N. Africa. At its greatest length it is 5150 km from east to west. From north to south, it is between 1275 and 2250 km. Area covered by the desert is about 8,400,000 sq.km.

Highest Waterfall: Salto Angel Falls in Venezuela on a branch of the river Carrao. Depth 979 m.

Scientific World

Tallest Office Building: Sears Tower, the national headquarters of Sears, Roebuck & Co. in Chicago, USA with 110 storeys, rising to 443

metres. It surpassed World Trade Centre in New York city in height.

Tallest Tower: 'CN Tower' in Metro Centre, Toronto, Canada rises to 555.33 metres. The tallest tower built before the era of television masts is the Eiffel Tower in Paris, France. Completed on Mar. 31, 1889, it has a height of 320.75 metres.

Largest Stadium: Strahov in Praha (Prague). Czech Republic. Completed in 1934, it can accommodate 240,000 spectators.

Longest Bridge: The longest steel arch bridge in the world is New River Gorge Bridge in West Virginia, USA, completed in 1977 with a span of 518.2 metres.

Longest Road Tunnel: The 16.32 km. long two-lane St. Gotthard Road Tunnel from Goschenen to Airolo Switzerland, opened in 1980.

Longest Railroad Tunnel: Seikan Rail Tunnel, 53.84 km, 240 m. beneath sea level and 100 m. below the seabed of the Tsugaru Strait between Tappi Saki, Honshu, and Fukushima, Hokkaido, Japan.

Longest Wall: The Great Wall of China, completed during 246-210 BC, has a mainline length of 3460 km.

Largest Cargo Vessel: The largest vessel capable of carrying dry cargo is the 365,000 dwt ore carrier 'Berge Stahl', built in Korea for the Norwegian owner Sig Bergesen Dy. It has a length of 343 m. a beam measuring 63 m and was launched on Nov. 5, 1986.

Largest Tanker: The world's largest tanker and ship of any kind is the 624,038-tonne dead weight "Seawise Giant", completed for C.Y. Tung in 1981.

Fastest Rail Speed: The highest speed recorded on any national rail system is 515 km/h by the French SNCF high speed train TGV Train-a Grande Vitesse, on 18 May 1990.

Longest Rail Line: 9438 km on the Trans-Siberian line from Moscow to Nakhodka Russia. There are 97 stops in the journey which takes 8 days 4 hr 25 min.

Biggest Railway Station: Grand Central Terminal, New York, built 1903-13. Covers 19.4 ha on 2 levels with 67 tracks. Over 550 trains and 180,000 people use it per day.

Largest Airliner: The highest capacity airliner is the Boeing 747 'Jumbo Jet', first flown in 1969. Capacity from 385 to more than 500 passengers, with a maximum speed of 969 km/h.

Fastest Airliner: The Supersonic BAC-Aerospatiale "Concorde", first flown in 1969, with a capacity of 128 passengers, cruises at up to Mach 2.2 or 2333 km/h.

Largest Airport: The \$2,625 million King Khalid International Airport outside Riyadh, Saudi Arabia, covering an area of 223 sq.km opened on Nov. 14, 1983. It has the world's largest control tower 74 m in height.

Busiest Airport: Chicago O'Hare International Airport, with a total of 591,30,007 passengers in 1989. This represents a take off or landing every 39.66 sec round the clock. In the first half of 1995, 32.4 m. people passed through O'Hare.

Largest Sea Port: Port of New York and New Jersey. It has a navigable water front of 1215 km. 261 cargo berths and 130 other piers give a total berthing capacity for 391 ships at one time.

Busiest Port and Harbour: The world's busiest port and largest artificial harbour is Rotterdam-Europoort in Netherlands, which handled 22,600 vessels in 1986.

Arts & Entertainment

First Woman Everester alone, without oxygen: A Briton is the first woman to reach the top of Mount Everest and without oxygen supplies. Ms Alison Hargreaves, 33, reached the summit of the 8,848 m. mountain on the Nepal-China border in May, 1995. She was killed in an avalanche while climbing K-2 in August.

Climber of 14 mountains: Erhard Loretan, a Swiss mountain-climber, has become the third man in history to have climbed all of the world's 14 highest mountains when he scaled Kanjchenjunga in the Himalayas on Oct.. 5, 1995.

Most Valuable Painting: The 'Mona Lisa' (La Gioconda) by Leonardo da Vinci (1452-1519) in the Louvre, Paris, was assessed for insurance purposes at the highest figure ever at \$ 100 million for its move for exhibition in Washington, DC and NYC from Dec. 14, 1962, to Mar. 12, 1963.

Record Price for Painting: The Hindu Pose

An Immortal Kiss

For millions of Americans, it was one of the most famous kisses in history - and something of a mystery. A *Life* magazine photo taken during street celebrations of the Japanese surrender on Aug. 14, 1945, shows a tall, dark-haired sailor kissing a nurse in New York City's Times Square. The 27-year-old nurse was identified by *Life* in August 1980 as Edith Shain, now 77 and living in California. But the sailor's identity was never known. Several men have claimed to be the kisser, but they all were rejected by *Life* or Shain. Now, along comes Carl Muscarello, a former New York City police detective now retired in Florida, who says he was the one - and Shain agrees. So why did Muscarello, who was 19 when the photograph was taken, wait until now to come forward? "My mother always knew it was me. My kids know it's me. I just never made a big deal over it," he said.

The Billionaires Club

As many as 388 private individuals or families with at least \$1 b. net worth were listed by *Forbes* magazine in July, 1995. The Billionaires Club is growing.



Bill Gates

Microsoft Corp. Mogul Bill Gates is the world's richest private individual with a \$12.9 b. fortune, displacing a Japanese real estate magnate from the top of the annual list compiled by *Forbes* magazine. Gates was the richest American a year ago, but ranked second worldwide.

Asia was well represented among the richest. Two of the 10 wealthiest individuals were from Hong Kong, one from South Korea and one from Taiwan.

Next to Bill Gates came investor Warren Buffett with \$10.7 b. Japanese real estate magnate Yoshiaki Tsutsumi, who had held the No. 1 spot the last eight years, fell to a third place.

Tied with Tsutsumi in third place was Hans Rausing, the Swedish head of the packaging company Tetra Laval.

The heirs of the late retailer Sam Walton remained the world's richest family with \$23.4 b. slightly less than a year ago.

Forbes said it excludes from its list royal families and heads of State because their fortunes come more from political heritage than efforts in the realm of economics.

(La Pose Hindone), a celebrated Matisse painting sold for a record of \$14.58 m. (about Rs. 45 crore) at Sotheby's auction in New York, in 1995).

Largest Sculptures: The mounted figures of Jefferson Davis (1808-89), Gen. Robert Edward Lee (1807-70) and Gen. Thomas Jonathan "Stonewall" Jackson (1824-63), covering 1.33 acres on the face of Stone Mountain, near Atlanta, Ga. They are 90 ft high. Roy Faulkner was on the mountain face for 8 years 174 days with a thermo-jet torch, working with the sculptor Walker Kirtland Hancock and other helpers from Sept. 12, 1963 to March 3, 1972.

Largest English Dictionary: The 12-volume Royal quarto Oxford English Dictionary of 15,487 pages published between 1884 and 1928

with a first supplement of 963 pages in 1933 and a further 4-volume supplement, edited by R.W. Burchfield.

Largest Encyclopaedia: La Enciclopedia Universal Ilustrada Europeo-Americana (J. Espasa & Sons, Madrid and Barcelona) totalling 105,000 pages in 104 volumes with 10 appendices and an annual supplement since 1935 comprising 165,200,000 words. The price is \$2,325.

Highest Newspaper Circulation: Yomiuri Shimbun (founded 1874) of Japan which attained a figure of 14,474,573 on Apr. 1, 1988. This has been achieved by totalling the figures for editions published in various centres with a morning circulation of 9,456,625 and an evening circulation of 5,017,948. It has a staff of 10,205.

According to the Guinness Book of Records, the highest circulation for any newspaper in the world was that for *Komsomolskaya Pravda* (founded 1925), the youth paper of the former Soviet Communist Party, which reached a peak daily circulation 21,975,000 copies in May 1990. The eight-page weekly newspaper *Argumenty i Fakty* (founded 1978) of Moscow, attained a figure of 33,431,100 copies in May 1990, when it had a estimated readership of over 100 million.

Largest Theatre: The largest building used for theatre is the National People's Congress Building (Ren min da hui tang) on the west side of Tian-anmen Square, Peking, China. It was completed in 1959 and covers an area of 5.2 ha. The theatre seats 10,000 and is only occasionally used as such, as in 1964 for the play, "The East is Red".

Longest Run Play: The longest continuous run of any show is of 'The Mousetrap' by Agatha Christie (Lady Mallowan) (1890-1976). This thriller opened at the Ambassadors Theatre (capacity 453), London, Nov. 25, 1952 and moved after 8,862 performances "down the road" to St. Martin's Theatre, London, March 25, 1974.

Longest-Running Film: 'Emmanuella' opened on June 26, 1974 at the Paramount City, Paris, and closed on Feb. 26, 1985 - the longest continuous run of any one film at one cinema.

Most Oscars: Walter (Walt) Elias Disney (1901-66) won more "Oscars" - the awards of the Academy of Motion Picture Arts and Sciences, instituted on May 16, 1929, for 1927-28 - than any other persons. The physical count comprises 20 statuettes and 12 other plaques and certificates, including posthumous awards.

Most Successful Singer: Madonna, U.S. Her album 'True Blue' sold 11 millions, was number one in 28 countries.

Grammy Awards: The record number of Grammy awards in a year is 8 by Michael Jackson in 1984. The all time record is 30 since 1958 by the orchestral conductor Sir Georg Solti (GB) (b. Budapest, Hungary, October 21, 1912).

India in the Records

The youngest doctor: 17-year-old Balamurali Ambati of India, has become world's youngest doctor. He got his degree from Mount Sinai School of Medicine, New York on May 19, 1995, breaking the record of an Israeli medical student who graduated from the University of Perugia in Italy at the age of 18.

Youngest GCSE holder: 8-year old Sonali Pandya, the youngest ever student in Britain to gain a General Certificate of Secondary Education (GCSE). She passed her examination in computer studies in 1994.

Physically handicapped mountaineer: Baba Mahindra Pal, physically handicapped mountaineer, has scaled Mt. Aabi-Gamin, a 7360-metre peak in the Garhwal. Himalayas on crutches on August 30, 1994.

Damages won: In December, 1994, communications Minister Sri Sukh Ram won a £60,000 defamation case. He had such a British journal in a British court for the publication of a libellous story. The damages are believed to be the highest ever awarded to a political figure.

Maximum Songs recorded: Playback singer Kumar Sanu recorded 28 songs in a single day.

Acting with most heroines: Prem Nasir co-starred with 85 heroines in his sixty-year career. He holds the world record for pairing with heroine Sheila in lead roles in 100 Malayalam films.

Gopal Dutt Bisht, a senior parliamentary reporter in Rajya Sabha won entry to the record books in 1993 by putting highest-ever 250 words per minute in Hindi. Bishti is also the first ever Ph.D in stenography.

Rajendra Khandelwal set a world record for the physically handicapped by reaching Khardungla Pass, the world's highest motorable road at a height of 18,380 feet, on his modified scooter.

Khandelwal, whose legs have been crippled due to polio, reached Khardungla on August 4, 1993.

Air India earned a place in the Book of Records for its herculean effort of airlifting the stranded Indian nationals home during the period August-October 1990 after the outbreak of Gulf War.

Air India had under "Operation Airlift", evacuated 1.11 lakh Indians from Amman to Bombay and in association with Indian Airlines operated 488 flights in a period of 59 days.

Wing Commander M. Dutt, an IAF helicopter pilot, won a place in the record book in 1990 for the largest-ever high-altitude rescue operation

by helicopter anywhere in the world. He did the feat from November 14-18, 1986 by flying a record number of 75 rescue sorties to save 145 people from the jaws of icy death.

Gul Mohammad of old Delhi entered the 1991 Guinness Book as the shortest man in the world. Gul (b.1957) is only 57.15 cm tall and weighs 17 kg.

VRP Rahman, a ground engineer of the Air Force in Chandigarh won a place by his 21 days non-stop dancing.

Milind Deshmukh, a Pune youth walked his way into the Guinness Book by covering 6 km, with a full milk bottle balanced on his head.

Capt. Nivedita Bhasin, of Indian Airline at 26 became the youngest pilot in civil aviation history to command a jet aircraft when she piloted IC-492 (Bombay-Aurangabad-Udaipur) on January 1, 1990.

Will Power: Rajendra Khandelwal who set the world record for handicapped by reaching Khardungla Pass, the world's highest motorable road in August 1993. Crippled by polio, he used a modified scooter.

Most Recordings: Miss Lata Mangeshkar (b.1928) between 1948 and 1985 has reportedly recorded not less than 30,000 solo, duet and chorus backed songs in 20 Indian languages. She frequently had 5 sessions in a day and has backed more than 2000 films.

Human Computer: Ms. Shakuntala Devi demonstrated the multiplication of two 13-digit numbers 7,686,369,774,870 × 2,465,099,745,779 picked at random by the Computer department of Imperial College London, on 18 June 1980, in 28 sec. Her correct answer was 18,947,668,177,995,426,462,773,730

Outsmarting Computer: S. Haridas, a mathematics teacher of Thrissur, Kerala calculated the 101st root of a 250-digit number within 8 seconds while the computer took 13 seconds to figure out the sum. Guinness record holder took 10.5 sec. for arriving at the 23rd root of a 200-digit number.

Longest Hair: Swami Pandarasannadhi, the head of the Tiruvaduturai monastery, Tanjore district, Madras, was reported in 1949 to have hair 26 ft. (7.92 m) in length.

Strongest Hair: Gahlinder Kaur of Leicester, England, is the human with the strongest hair. The 11-year-old Kaur's single strand of hair took the strain of 25 gms.

Longest Moustache: Masuriya Din (b.1908), Brahmin of the Partabgarh District in Uttar Pradesh. His moustache grew to an extended length of 8 ft 6 in (259 cm) between 1949 and 1962.

Operations (Most): Padmabhushan S.M.C. Modi, a pioneer of mass eye surgery in India since 1943, has performed 833 cataract operations in a single workday and a total of 95,019 till Jan. 1987.

Standing: The longest period on record that any one has continuously stood is for more than 17 years in the case of Swami Maujiri Maharaj when performing the Tapasya or penance from 1955 to 1973 in Shahjahanpur, Uttar Pradesh. When sleeping, he would lean against a plank. He died aged 85 in Sept. 1980.

Chest expansion: Surinder Singh Azad, a Superintendent in Customs Department established two amazing records. He can expand his chest by 9 inches. He claims to have driven his scooter only in the fourth gear since 1979 which he demonstrated by riding for 534 km on the top gear.

Most writing: Surendra Pharya of Jaipur wrote 1314 characters on a single grain of rice on 28 Feb. 1991. He also wrote 10056 characters within the size of a postage stamp in Dec. 1990.

Crawling: Over a space of 5 months ending on March 9, 1985, Jagdish Chander, 32, crawled 1,400 km (870 miles) from Aligarh to Jammu, to propitiate his favourite goddess, Mata.

Singing (Solo): 262 hrs. by pastor S. Jayaseelan at the Asian Glass House Building, Rammad, from April 22-May 3, 1989.

Whistling: Vanka Ravindra Kumar of Guntur, Andhra Pradesh whistled for 45 hrs 20 min from 10-12 March, 1990.

Crowds (Largest): The greatest recorded number of human beings assembled with a common purpose was an estimated 15 million at the Hindu festival of Kumbha-Mela, which was held at the confluence of the Yamuna (formerly called the Jamna), the Ganges and the 'invisible' Saraswati at Allahabad, Uttar Pradesh, in Feb. 6, 1989.

Largest Funeral: The funeral of the charismatic C.N. Annadurai (died 3 Feb. 1969) I. Nadu Chief Minister was, according to a police estimate, attended by 15 million.

Quintuplets (Heaviest): 25 lb to Mrs. Kamalammal, Pondicherry, Dec. 30, 1956.

Highest and Lowest Amphibian: The greatest altitude at which an amphibian has been found is 8000 m (26,246 ft.) in the Himalayas for a common toad (*Bufo vulgaris*). This species has also been found at a depth of 340 m (1,115 ft) in a coal mine.

Tree with Largest Canopy: The tree canopy covering the greatest area is the great banyan *Ficus benghalensis* in the Indian Botanical Garden, Calcutta with 1,775 prop or supporting roots and a circumference of 412 m (1,350 ft). It covers overall some 1.2 ha (3 acres) and dates from before 1787.

It is reported that a 550-year-old banyan tree (known as 'Thimmamma Marriamanu') in Gutibayalu village near Kadiri taluk, Andhra Pradesh spreads over 2.1 ha (5.2 acres).

Tallest and Fastest-Growing Bamboo: The tallest recorded bamboo was a thorny bamboo culm (*Bambusa arundinacea*) felled at Pattazhi, Travancore, in November 1904, which measured 37 m (121½ ft.).

Largest Delta: The largest delta is that created by the Ganga (Ganges) and Brahmaputra in Bangladesh and West Bengal. It covers an area of 75,000 sq. km. (30,000 sq. miles).

Greatest Rainfall: 930 cm (366.14 in.) Cherrapunji, Meghalaya, (July 1861)-12 months; 2646 cm (1,041.78 in.) Cherrapunji, Meghalaya (Aug 1, 1860-July 31, 1861).

Longest Palindromic Words: The longest in the English language is 'redivider' (9

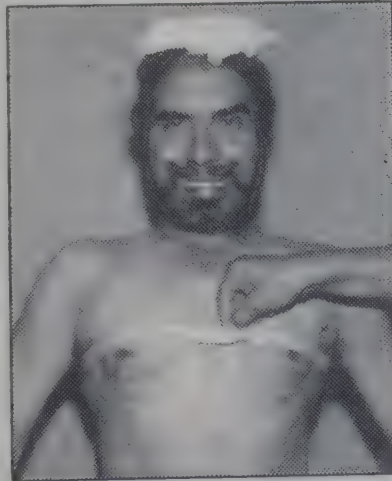
letters). The 9-letter word, 'Malayalam', is the name given to the language of the Malayali people in Kerala.

Highest Filling Station: The highest petrol filling station in the world is at Leh, Ladakh, India at 3658 m (12,000 ft) operated by Indian Oil.

Busiest Bridge: The world's busiest bridge is the Howrah Bridge across the River Hooghly in Calcutta. In addition to 57,000 vehicles a day it carries an incalculable number of pedestrians across its 457 m (1,500-ft)-long 22 m (72-ft)-wide span.

Highest Bridge: The highest road bridge is at an altitude of 5602 m (18,380 ft) near Khardung La, Ladakh, built by the Indian army in Aug. 1982. This Bailey Bridge is only 30 m (98.4 ft) long.

Writing Medical Books: Dr. Laxmi Chand Gupta of B.S.F. has written 65 medical books. He was awarded Sports Science Research Founda



Surinder Singh Azad

tion Award, 1993, for distinguished services to the sports, in addition to Dr. B.C.Roy National Award in 1988.

Largest Kitchen: The largest kitchen ever set up has been the Indian Government field kitchen set up in April 1973 at Ahmadnagar, Maharashtra, in the famine area. The kitchen daily provided 1.2 million subsistence meals.

Largest Employer: The world's largest employer is Indian Railways with 1,646,704 staff in 1990.

Longest typewriting (manual machine): 123 hrs by Shambhoo Govind Anbhawane of Bombay 18-23 August 1986 on a Godrej Prima manual machine, aggregating 806,000 strokes.

Speediest: Abhishek Jain from Punjab, won World Typing Championship for Juniors at Brussels in 1991 (110 words/minute). Retained championship in July 1995, at Amsterdam.

Largest Bank: The bank with the most branches is the State Bank of India which had 12,462 branches on January 1, 1991 with assets of £ 22 billion. (Rs. 1,10,000 crore).

Silver: The largest single pieces of silver are the pair of water jugs of 10,408 troy oz (867.3 troy lb or 323.5 kg) made in 1902 for the Maharajah of Jaipur (1861-1922). They are 5 ft 3 in (160 cm) tall with a circumference of 8 ft 1½ in (247.7 cm) and have a capacity of 1,800 Imperial gallons (8178 lit. or 2,162 US gallons). They are now in the City Palace, Jaipur. The silversmith was Gobind Narain.

Milk Yields: A 15-year-old goat owned by Mrs. Nanbui Meghani of Bhuj, Gujarat, was reported in November 1984 to have lactated continuously for 12 years.

Marriage Ages: The country with the lowest average age for marriage is India, with 20.0 years for males and 14.5 for females.

Terrorism: Air India Boeing 747 'Kanishka', crashed into Atlantic, south of Ireland, killing 329 on June 23, '85. A bomb placed aboard by Sikh extremist is the suspected cause.

Lowest Murder Rates: In the state of Sikkim, in the Himalayas, murder is practically unknown, while in Hunza area of Kashmir, in the Karakoram, only one definite case by a Hunzarwat has been recorded since 1900.

Largest School: South Point High School, Calcutta, had an enrollment of 12,350 regular students in 1983-84.

Minarets and pagodas: The tallest free-standing stone tower is the Qutab Minar, south

of New Delhi, built in 1194 to a height of 72.5 (238 ft.)

Worst Disasters: Dam Burst: Manchu River Dam, Morvi, Gujarat, killing about 5,000 August 11, 1979. Industrial: Bhopal, at Union Carbide plant killing about 2500 plus 20,000 injured on Dec. 2-3, 1984. Railroad: Bagmati River, Bihar killing about 800 on June 6, 1991.

Man-Eating Animal: Champawat district tigress shot by Col. Jim Corbett, killing 436, 1907.

Hail: Moradabad, Uttar Pradesh, killing 20 on April 20, 1888.

Balancing on one foot: The longest corded duration for balancing on one foot is 10 hours by N. Ravi in Sathyamangalam City, Tamil Nadu, April 17-18, 1982. The disengaged foot may not be rested on the standing foot nor a stick be used for support or balance, but minute rest breaks are allowed after each hour.

Clapping: The duration record for continuous clapping (sustaining an average 160 claps per min. audible at 120 yds) is 58 hrs 9 min by V. Jayaraman of Tamil Nadu on February 12-13, 1988.

Handshaking: Dharendra Tomar of Jhansi, Bhopal shook hands with 23040 people in 8 hours during holy festival on 16 May 1991.

Running Backwards: Arvind Pandya ran 1000 m backwards in 107 days, Aug. 18-Dec. 18, 1984.

Talking: Record for non-stop talking is 30 hours by S.E. Jayaraman of Cuddalore from 6 a.m. June 8, 1989. He continued for 15 days taking a respite of 15 min every three hours.

Religion: Longest Service: Rev. K.M. Jacob (died 10 July 1880) was made a deacon in the Mar Thoma Syrian Church of Malabar in Kerala, Southern India in 1897. He served his church until his death on 18th Mar. 1984, 87 years later.

Longest Canoe: The world's longest canoe is the 35.7 m or 117 ft long 20.3 tonnes/2000 kg Kauri Wood Maori war canoe Nga Toki Mata Whakapoua, built by adzes at Kovikeri Inlet, New Zealand in 1940 for a crew of 70 or more. The 'Snake Boat' Nadubhagom, 41.1 m or 135 ft long of Kerala has a crew of 109 rowers and 9 encouragees.

Longest Railway Platform: At Kharagpur, West Bengal which measures 833 m or 2733 ft in length.

Greatest ranges: The world's greatest mountain range is the Himalaya-Karakoram which contains 96 of the world's 109 peaks over 7315 m (24,000 ft).

Record - LIC Business: Jawahar Dholakia, Development Officer of the Rajkot Division of Life Insurance Corporation of India was the first in the world to sell over Rs. 1 crore of new Life Insurance policies in the year 1969-'70 and the only person to procure over Rs. 1 crore of new



Abhishek Jain

C. business, every year, consistently for the last 27 years. He entered the Guinness Book of World Records in 1985.

Largest Star Ruby : 2475 carats, Raja Rathna, displays an animated star of 6 lines and is cut as a bochon. Owned by Adv.G.Vijayaraj of Bangalore.

Largest Double Star Ruby : 1370 carats. A bochon art gem, Neelanjahi owned by G. Vidyaraj, Bangalore, displays 12 star lines and measures 7.62 cm height and 5.08 cm diameter.

Largest Election : Those which began on 20 May 1991 for the Lok Sabha, which has 543 elective seats. 315,439,908 people out of an electorate of 488,678,993 cast their votes. 359 parties contested the elections, and there were nearly 565,000 polling stations manned by 3 million staff.

Largest ballot paper : On March 5, 1985 in the State Assembly (Vidhan Sabha) elections in Karnataka, there were 301 candidates for Bangalore city.

Driving Test : The most driving tests by Mrs. Git Kaur Randhawa (b 1937) of Middlesex, UK, who triumphed at her 48th attempt in 1987.

Most Protracted Litigation : Gaddem Anumantha Reddy, a retired civil servant of Hyderabad initiated his legal actions against the Indian Government, covering a total of 44 years, nine months and eight days. He stood 7th in the Civil Service examination, in Hyderabad in '43-'44 but was overlooked for an appointment. He fought, and won the battle. Retired as Deputy Secretary, but nine years later was deemed to have retired as Secretary to Government, Forests and Rural Development.

Most prolific murderer : It was established in the trial of Behram, the Indian thug, that he had strangled at least 931 victims with his yellow and white cloth strip or ruhmal in the Oudh district between 1790 and 1840.

Greatest damages (Personal injury): The compensation for the disaster in 1984 at the

Union Carbide Corporation plant in Bhopal was agreed at \$ 470 million. The Supreme Court passed the order for payment on Feb.14, 1989 after the settlement between the Corporation and the Indian Government, which represented the interests of more than 500000 claimants.

Classical Concert attendance : An estimated 800,000 attended a free open-air concert by the New York Philharmonic conducted by Zubin Mehta, on the Great Lawn of Central Park, New York, on 5th July 1986, as part of the Statue of Liberty Weekend.

Biggest Bicycle Manufacturers : Hero cycles of Ludhiana, Punjab, founded in 1956 by the Munjal brothers. In 1989, they turned out 2,936,073 units.

Oldest Prime Minister : The oldest age of first appointment has been 81 by Morarji Ranchhodji Desai (b 29 Feb, 1896) in March 1977.

Maximum dividend : In 1982, Colgate Palmolive declared a 113% dividend which is the maximum by a company in India. The highest dividend declared by a wholly Indian Company is 110% by Bajaj Auto in 1990.

Three generations in a single movie : In 1951, three generations of the Kapoor family acted together in 'Awara'-Dewan Bisheshwar, Prithivi Raj, Raj and his brother Shashi Kapoor. In 1971, Prithiviraj, Raj and Randhir Kapoor acted in 'Kal, Aaj aur Kal'. Again, Geoffrey Kendall, Jenifer and Sanjana Kapoor acted together in "36 Chowringhee Lane".

India's first woman railway driver: Ms. Surekha Yadao.

Newspaper collection: Manu Prakash Jindal of Jalandhar has a collection of 2150 different

Writing with left hand: When Ms. Surashri Chaudhuri, 23, a commercial artist with a Delhi advertising firm, writes with her left hand, the script emerges in reverse.

Vijay Narain Rai of Lucknow claims he can write with his right hand both ways (normal and reverse) at the speed of 19 w.p.m.

Well-Known Books

A Brief History of Time: Stephen Hawking
 Accident: Danielle Steel
 A China Passage: John Kenneth Galbraith
 Critique of Pure Reason: Immanuel Kant
 Dangerous Place: Daniel Patrick Moynihan
 Doll's House: Ibsen
 Donis: P.B. Shelley
 Farewell to Arms: Ernest Hemingway
 Featureless Body, Timeless Mind: Deepak Chopra
 Genda, The: Bob Woodward

A Guide for the Perplexed: E.F. Schumacher
 A Midsummer Night's Dream: William Shakespeare
 A Million Mutinies Now: V.S. Naipaul
 Ancient Evenings: Norman Mailer
 A New France: Jacques Chirac
 Angels in America: Tony Kushner
 A Passage to England: Nirad C. Choudhuri
 A Passage to India: E.M. Forster
 A Prisoner's Scrapbook: L.K. Advani

A River Sutra: *Gita Mehta*
 A Sense of Time: *H.S. Vatsyayan*
 A Suitable Boy: *Vikram Seth*
 A Strange and Sublime Address: *Amit Chaudhary*
 A Spaniard in the Works: *John Lennon*
 A Tale of Two Cities: *Charles Dickens*
 A Thousand Days: *Arthur M. Schlesinger*
 A Village by the Sea: *Anitha Desai*
 A Voice for Freedom: *Nayantara Sehgal*
 A Week with Gandhi: *Louis Fischer*
 A Woman's Life: *Guy de Maupassant*
 Adam Bede: *George Eliot*
 Adventures of Tom Sawyer, The & Adventures of Huckleberry Finn, The: *Mark Twain (Samuel Langhorne Clemens)*
 Adventures of Sherlock Holmes, The: *Arthur Conan Doyle*
 Advice and Consent: *Allen Drury*
 Affluent Society, The: *John Kenneth Galbraith*
 After Amnesia: *Ganesh N. Devy*
 After All These Years: *Susan Issacs*
 Age of Reason, The: *Jean Paul Sartre*
 Agni Veena: *Kazi Nazrul Islam*
 Agony and the Ecstasy, The: *Irving Stone*
 Akbarnama: *Abdul Fazal*
 Alaska Unbound: *James Michener*
 Alexander Quartet: *Lawrence Durrell*
 Alice in Wonderland: *Lewis Carroll*
 All's Well that Ends Well: *William Shakespeare*
 All Quiet on the Western Front: *Erick Maria Remarque*
 All the Kings Men: *Robert Penn Warren*
 All the President's Men: *Carl Bernstein & Bob Woodward*
 All Things Bright and Beautiful: *James Herriot*
 Amar Kosh: *Amar Singh*
 An American Tragedy: *Theodore Dreiser*
 An Autobiography: *Jawaharlal Nehru*
 An Idealist View of Life: *Dr. S. Radhakrishnan*
 Anandmath: *Bankim Chandra Chatterjee*
 And Quiet Flows the Don: *Mikhail Sholokhov*
 Androcles and the Lion: *George Bernard Shaw*
 Animal Farm: *George Orwell*
 Anna Karenina: *Leo Tolstoy*
 Antony and Cleopatra: *William Shakespeare*
 Ape and Essence: *Aldous Huxley*
 Apple Cart: *George Bernard Shaw*
 Area of Darkness: *V.S. Naipaul*
 Arms and the Man: *George Bernard Shaw*
 Around the World in Eighty Days: *Jules Verne*
 Arrangement, The: *Elia Kazan*
 Arrowsmith: *Sinclair Lewis*
 As You Like It: *William Shakespeare*
 Asia and Western Dominance: *K.M. Panikkar*
 Asian Drama: *Gunnar Myrdal*
 August 1914: *Alexander Solzhenitsyn*
 Autobiography of an Unknown Indian: *Nirad C. Choudhuri*

Babbit: *Sinclair Lewis*
 Baby and Child: *Penelope Leach*
 Back to Methuselah: *George Bernard Shaw*
 Bandicoot Run: *Manohar Malgonkar*
 Banyan Tree, The: *Hugh Tinker*
 Beginning of the Beginning: *Bhagwan Sri Rajneesh*
 Beloved: *Toni Morrison*
 Ben Hur: *Lewis Wallace*
 Best and the Brightest, The: *David Halberstam*
 Beyond the Horizon: *Eugene O'Neill*
 Beyond Modernisation, Beyond Self: *Sisirkur Ghose*
 Bharat Bharati: *Maithili Saran Gupta*
 Big Fisherman, The: *Lloyd Douglas*
 Biographia Literaria: *Samuel Taylor Coleridge*
 Black Holes and Baby Universes: *Stephen Hawking*
 Blind Ambitions: *John Dean*
 Bliss was it in that Dawn: *Minoo Masani*
 Born Free: *Joy Adamson*
 Bread, Beauty and Revolution: *Khwaja Ahmad Abbas*
 Breakthrough: *Gen. Moshe Dayan*
 Bridges of Madison County, The: *R.J. Wall*
 Bride's Book of Beauty, The: *Mulk Raj Anand*
 Brothers Karamazov: *Feodor Dostoyevsky*
 Bubble, The: *Mulk Raj Anand*
 Butterfield 8: *John O'Hara*
 By God's Decree: *Kapil Dev*
 By Love Possessed: *James Gould Cozzens*
 Byzantium: *W.B. Yeats*

Caesar and Cleopatra: *George Bernard Shaw*
 Cancer Ward, The: *Alexander Solzhenitsyn*
 Candida: *George Bernard Shaw*
 Candide: *Voltaire*
 Canterbury Tales, The: *Geoffrey Chaucer*
 Cardinal, The: *Henry Morton Robinson*
 Castle, The: *Franz Kafka*
 Catcher in the Rye: *J.D. Salinger*
 Centennial: *James A. Michener*
 Chandaliika: *Rabindra Nath Tagore*
 Chemmeen: *Thakazhi Sivasankara Pillai*
 Cherry Orchard: *Anton Chekhov*
 Chesapeake: *James A. Michener*
 Chidambaram: *Sumitranandan Pant*
 Child Harold's Pilgrimage: *Lord Byron*
 Children of Gebelawi: *Naguib Mahfouz*
 Chitra: *Rabindra Nath Tagore*
 Chithirappaavai: *P.V. Akilandam*
 Choma's Drum: *K. Shivaram Karanth*
 Chronicle of a Death Foretold: *Gabriel Garcia Marquez*
 Class, The: *Erich Segal*
 Climate of Treason: *Andrew Boyle*
 Clockwork Orange: *Anthony Burgess*
 Clown, The: *Heinrich Boll*
 Colonel Sun: *Kingsley Amis*

Largest Children's Library in Asia

A library specially catering to children will be built in South China's Shenzhen City in 1997, according to Beijing-based *Guangmingdaily*. The library, which is expected to be the largest of its kind in Asia with a total floor space of 21,000 sq. m. in this economically-developed city in Guangdong province, will house 800,000 books, and plans to receive 100 to 4,000 readers daily, the paper quoted Wang Fu, director in charge of construction of the library, as saying.

The reading sections in the library will be decorated in various styles - forest, grassland, under the sea, etc., which will stimulate children's interests in reading and learning. The library will also provide training courses in music, dancing, fine arts, languages and computer science. Educators and parents will be able to get professional information at the library.

Study of Errors: William Shakespeare
Common Sense: Thomas Paine
Communist Manifesto: Karl Marx
Confessions: Jean Jacques Rousseau
Confessions of a Lover: Mulk Raj Anand
Confessions of an Opium Eater, The: Thomas DeQuincey
Confidential Clerk: T.S. Eliot
Quest of Self: Mahatama Gandhi
Conquest of Circe: Nirad C. Choudhuri
Conquest: Mulk Raj Anand
Count of Monte Cristo: Alexander Dumas
Crusoe, The: John Updike
Dancer, The: Rabindra Nath Tagore
Early Papers: Joseph Addison
Exile: Gore Vidal
Full Moon: Rabindra Nath Tagore
Crime and Punishment: Feodor Dostoyevsky
From Chaos: E.M.S. Namboodiripad
Final Mass: William E. Burrows, Robert Windrem
Facing the Threshold of Hope: Pope John Paul II
My Beloved Country: Alan Paton
Fire in the Vanity Bag: Nirad C. Choudhuri

Business at Noon: Arthur Koestler
Room, The: R.K. Narayan
Capital: Karl Marx
Copperfield: Charles Dickens
Gift of Grace: Arthur Ashe & Arnold
Impersad

Days of My Years: H.P. Nanda
Death of a City: Amrita Pritam
Death of a Patriot: R.E. Harrington
Death in Venice: Thomas Mann
Debacle: Emile Zola
Decameron: Giovanni Boccaccio
Decline and Fall of the Roman Empire: Edward Gibbon
Descent of Man: Charles Darwin
Deserted Village: Oliver Goldsmith
Devdas: Sharat Chandra Chatterjee
Diana: The True Story: Andrew Morton
Diana V Charles: James Whitaker
Dilemma of Our Time: Harold Joseph Laski
Diplomacy: Henry Kissinger
Disclosure: Michael Crichton
Discovery of India: Jawaharlal Nehru
Distant Drums: Manohar Malgonkar
Divine Comedy: Alighieri Dante
Divine Life: Swami Sivananda
Doctor Zhivago: Boris Pasternak
Doctor's Dilemma: George Bernard Shaw
Dr. Jekyll and Mr. Hyde: Robert Louis Stevenson
Don Juan: Lord Byron
Don Quixote: Miguel de Cervantes
Durgesh Nandini: Bankim Chandra Chatterjee
Dynamics of Social Change: Chandra Shekhar

E*arth: Emile Zola*
Earth in the Balance: Forging a New Common Purpose: Al Gore
Elegy written in a Country Churchyard: Thomas Gray
Eminent Victorians: Lytton Strachey
Emma: Jane Austen
End of a Beautiful Era, The: Joseph Brodsky
Ends and Means: Aldous Huxley
End of History and the Last Man, The: Francis Fukuyama
English August: Upamanyu Chatterjee
Envoy to Nehru: Escott Reid
Essays for Poor to the Rich: John Kenneth Galbraith
Essays of Elia: Charles Lamb
Essays on Gita: Sri Aurobindo Ghosh
Eternal Himalayas: Major H.P.S. Ahluwalia
Executioner's Song, The: Norman Mailer
Expanding Universe: Arthur Stanley Eddington
Eye of the Storm, The: Patrick White

F*aces of Everest: Major H.P.S. Ahluwalia*
Family Reunion: T.S. Eliot
Far from the Madding Crowd: Thomas Hardy
Far Pavilions, The: M.M. Kaye
Faraway Music, The: Svetlana Allilueva
Farewell the Trumpets: James Morris
Farewell to Arms: Ernest Hemingway
Farm House: George Orwell

Father and Sons: *Ivan Turgenev*
 Faust: *J.W. Von Goethe*
 Fifth Horseman, The: *Larry Collins and Dominique Lapierre*
 Final Days, The: *Bob Woodward and Carl Bernstein*
 Fire Next Time, The: *James Baldwin*
 First Circle: *Alexander Solzhenitsyn*
 Flounder, The: *Gunter Grass*
 Food, Nutrition and Poverty in India: *V.K.R.V. Rao*
 For Whom the Bell Tolls: *Ernest Hemingway*
 Forbidden Sea, The: *Tara Ali Baig*
 Forsyth Saga: *John Glasworthy*
 Fortynine Days: *Amrita Pritam*
 Freedom at Midnight: *Larry Collins and Dominique Lapierre*
 French Revolution: *Thomas Carlyle*
 Friends and Foes: *Sheikh Mujibur Rahman*

Ganadevata: *Tara Shankar Bandopadhyaya*
 Gandhi and Stalin: *Louis Fisher*
 Gardener: *Rabindra Nath Tagore*
 Gathering Storm: *Winston Churchill*
 Ghasiram Kotwal: *Vijay Tendulkar*
 Gitanjali: *Rabindra Nath Tagore*
 Glimpses of World History: *Jawaharlal Nehru*
 Godan: *Prem Chand*
 Godfather, The: *Mario Puzo*
 Golden Gate, The: *Vikam Seth*
 Golden Threshold: *Sarojini Naidu*
 Gone with the Wind: *Margaret Mitchell*
 Goodbye, Mr. Chips: *James Hilton*
 Good Earth: *Pearl S. Buck*
 Good Times, Bad Times: *Harold Evans*
 Grammar of Politics: *Harold Joseph Laski*
 Grapes and the Wind, The: *Pablo Neruda*
 Grapes of Wrath, The: *John Steinbeck*
 Great Challenge, The: *Louis Fischer*
 Great Expectations: *Charles Dickens*
 Great Gatsby: *F. Scott Fitzgerald*
 Great Tragedy: *Z.A. Bhutto*
 Guide: *R.K. Narayan*
 Gulag Archipelago: *Alexander Solzhenitsyn*
 Gulliver's Travels: *Jonathan Swift*

Hamlet: *William Shakespeare*
 Heat and Dust: *Ruth Praver Jhabwala*
 Heir Apparent: *Dr. Karan Singh*
 Heritage: *Anthony West*
 Heroes and Hero Worship: *Thomas Carlyle*
 Himalayan Blunder: *Brigadier J.P. Dalvi*
 Hindu View of Life: *Dr. S. Radhakrishnan*
 Hinduism: *Nirad C. Choudhuri*
 House Divided, A: *Pearl S. Buck*
 House of the Spirits, The: *Isabel Allende*
 Human Factor: *Graham Greene*
 Humboldt Gift, The: *Saul Bellow*
 Hunchback of Notre Dame: *Victor Hugo*
 Hungry Stones: *Rabindra Nath Tagore*

I follow the Mahatma: *K.M. Munshi*
 Idiot, The: *Feodor Dostoyevsky*
 Idols: *Sunil Gavaskar*
 If I am Assassinated: *Z.A. Bhutto*
 Importance of Being Earnest, The: *Oscar Wilde*
 In Evil Hour: *Gabriel Garcia Marques*
 In Memoriam: *Alfred Lord Tennyson*
 In Retrospect: *The Tragedy and Lessons of Vietnam — McNamara*
 In Search of Gandhi: *Richard Attenborough*
 India, The Critical Years: *Kuldip Nayar*
 India Changes: *Taya Zinkin*
 India Discovered: *John Keay*
 India Divided: *Rajendra Prasad*
 India of Our Dreams: *M.V. Kamath*
 India Remembered: *Percival & Margaret Sp*
 India Wins Freedom: *Abdul Kalam Azad*
 Indian Philosophy: *Dr. S. Radhakrishnan*
 India's Priceless Heritage: *N.A. Palkhivala*
 Interpreters, The: *Wole Soyinka*
 Inside Asia, Inside Europe, Inside Africa, etc: *John Gunther*
 Intimacy: *Jean Paul Sartre*
 Invisible Man: *H.G. Wells*
 Isabella: *John Keats*
 Islamic Bomb: *Stev Weissman & Herbert Krouney*
 Island in the Streams: *Ernest Hemingway*
 Is Paris Burning? *Larry Collins & Dominique Lapierre*
 Ivanhoe: *Sir Walter Scott*

Jai Somnath: *K.M. Munshi*
 Jane Eyre: *Charlotte Bronte*
 Jean Christophe: *Romain Rolland*
 Jewel: *Danielle Steel*
 Joke, The: *Milan Kundera*
 Judgement, The: *Kuldip Nayar*
 Julius Caesar: *William Shakespeare*
 Jungle Book: *Rudyard Kipling*
 Jurassic Park: *Michael Crichton*

Kayar: *Thakazhi Sivasankara Pillai*
 Kagaz Te Kanwas: *Amrita Pritam*
 Kamayani: *Jai Shankar Prasad*
 Kamasutra: *Vatsyayana*
 Kane and Abel: *Jeffrey Archer*
 Kanthapura: *Raja Rao*
 Kapala Kundala: *Bankim Chandra Chatterjee*
 Kashmir: A Tragedy of Errors: *Tavleen Singh*
 Keeper of the Keys, The: *Milan Kundera*
 Kenilworth: *Sir Walter Scott*
 Kidnapped: *Robert Louis Stevenson*
 Kim: *Rudyard Kipling*
 King of Dark Chamber: *Rabindra Nath Tagore*
 King Lear: *William Shakespeare*
 Kitni Nawon Kitni Bar — *S.H. Vatsyayan*
 Kubla Khan: *Samuel Taylor Coleridge*

dy Chatterley's Lover: *D.H. Lawrence*
 a: *Taslima Nasreen*
 peste: *Albert Camus*
 t Burden: *Upamanyu Chatterjee*
 t Days of Pompeii: *Edward George Lytton*
 t Things: *C.P. Snow*
 d Kindly Light: *Vincent Shean*
 ders: *Richard Nixon*
 ves of Grass: *Walt Whitman*
 Contract (Social Contract): *J.J. Rousseau*
 ends of Khasak, The: *O.V. Vijayan*
 Miserables: *Victor Hugo*
 ters From the Field: *Margaret Mead*
 iathan: *Thomas Hobbes*
 e Divine: *Sri Aurobindo*
 e is Elsewhere: *Milan Kundera*
 e of Samuel Johnson: *James Boswell*
 e Water for Chocolate: *Laura Esquivel*
 ita: *Vladimir Nabakov*
 neliness of the Long Distance Runner:
Allan Sillitoe
 ng Day's Journey into Night: *Eugene O'Neill*
 ng Walk to Freedom: *Nelson Mandela*
 rd of the Flies: *William Golding*
 ve Story: *Erich Segal*

Labbeth: *William Shakespeare*
 gic Mountain: *Thomas Mann*
 hatma Gandhi: *Romain Rolland*
 in Street: *Sinclair Lewis*
 or Barbara: *George Bernard Shaw*
 king of a Midsummer Night's Dream, The:
David Selbourne
 an, Beast and Virtue: *Luigi Pirandello*
 anaging for the Future: *Peter F. Drucker*
 andarin, The: *Simon de Beauvoir*
 an of Property: *John Galsworthy*
 an and Superman: *George Bernard Shaw*
 an-eaters of Kumaon: *Jim Corbett*
 an of Destiny: *George Bernard Shaw*
 ankind and Mother Earth: *Arnold Toynbee*
 any Worlds: *K. P. S. Menon*
 arriage and Morals: *Bertrand Russell*
 asters, The: *C. P. Snow*
 aurice: *E. M. Forster*
 ayor of Casterbridge: *Thomas Hardy*
 ein Kampf: *Adolf Hitler*
 emories of Hope: *Gen. Charles de Gaulle*
 en Who Killed Gandhi, The: *Manohar Mal
gonkar*
 erchant of Venice, The: *William Shakespeare*
 ddle Ground, The: *Margaret Drabble*
 ddle March: *George Eliot*
 idnight's Children: *Salman Rushdie*
 ill on the Floss: *George Eliot*
 iser, The: *Moliere*
 oby Dick: *Hermann Melville*
 oon and Sixpence, The: *W. Somerset
Maugham*

Wordsworth: patient millions

An unpublished satire written in 1795 by the English romantic poet William Wordsworth has been discovered in the national library of Scotland in Edinburgh.

It attacks the House of Commons as "the house of taxes, turnpike roads and laws" and discusses the potential of a French-style revolution to overthrow corrupt government and end the oppression of "India's patient millions", according to a *Daily Telegraph* report.

The satire is modelled on the Roman poet and satirist Juvenal, whose 16 satires are a powerful denunciation of the profligacy and corruption of Roman society.

It was written in collaboration with Francis Wrangham, curate of Cobham, Surrey, southern England, during a visit in 1795.

Nicholas Roe, of the University of St Andrews in Scotland, who found the piece, said it shed light on a period of the poet's life during which he was previously thought to have abandoned political writing for romanticism.

Wordsworth (1770-1850) was the leader, along with S.T. Coleridge, of the romantic revolution which attacked the artificiality of 18th century poetry.

Moonwalk: *Michael Jackson*
 Moor's Last Sigh, The: *Salman Rushdie*
 Mother: *Maxim Gorky*
 Mother India: *Katherine Mayo*
 Mrs. De Winter: *Susan Hill*
 Much Ado About Nothing: *William
Shakespeare*
 Murder in the Cathedral: *T. S. Eliot*
 My Days: *R. K. Narayan*
 My India: *S. Nihal Singh*
 My Life and Times: *V. V. Giri*
 My Music, My Life: *Pt. Ravi Shankar*
 My Own Boswell: *M. Hidayatullah*
 My Presidential Years: *R. Venkatraman*
 My Struggles: *E. K. Nayanar*
 My Son's Father: *Dom Moraes*
 My Truth: *Indira Gandhi*

Nana: *Emile Zola*
 Never At Home: *Dom Moraes*
 New Dimensions of India's Foreign Policy:
Atal Behari Vajpayee
 Night Manager, The: *Carre, John le*
 Nineteen Eighty Four: *George Orwell*
 Nisheeth: *Uma Shankar Joshi*

No Full Stops in India: *Mark Tully*

Odakkuzhal: *G. Shankara Kurup*
Of Human Bondage: *W. Somerset Maugham*
O Jerusalem: *Larry Collins & Dominique Lapiere*

Old Man and the Sea, The: *Ernest Hemingway*

Oliver Twist: *Charles Dickens*

Oliver's Story: *Erich Segal*

One day in the Life of Ivan Denisovich: *Alexander Solzhenitsyn*

One Hundred Years of Solitude: *Gabriel Garcia Marquez*

One World: *Wendell Wilkie*

One World and India: *Arnold Toynbee*

On The Threshold of Hope: *Pope John Paul*

Operation Bluestar: The True Story: *Lt. Gen. K.S. Brar*

Operation Shylock: *Philip Roth*

Origin of Species, The: *Charles Darwin*

Oru Desathinte Katha: *S. K. Pottekkatt*

Othello: *William Shakespeare*

Other Side of Midnight, The: *Sidney Sheldon*

Our Films Their Films: *Satyajit Ray*

Paddy Clark, Ha Ha Ha: *Rodney Doyle*

Painted Veil, The: *W. Somerset Maugham*

Painter of Signs: *R. K. Narayan*

Pakistan Cut to Size: *D. R. Mankekar*

Pakistan: The Gathering Storm: *Benazir Bhutto*

Pale Blue Dot: *Carl Sagan*

Panchatantra: *Vishnu Sharma*

Paradise Lost: *John Milton*

Pather Panchali: *Bibhuti Bhushan*

Peter Pan: *J. M. Barrie*

Pickwick Papers, The: *Charles Dickens*

Pilgrim's Progress, The: *John Bunyan*

Pleading Guilty: *Scott Turow*

Portrait of India: *Ved Mehta*

Post Office: *Rabindra Nath Tagore*

Power and the Glory, The: *Graham Greene*

Power That Be, The: *David Halberstam*

Prathama Pratishruti: *Ashapurna Devi*

Prelude: *William Wordsworth*

Preparing for the Twentieth Century: *Paul Kennedy*

Price of Power: Kissinger in the Nixon White House: *Seymour M. Hersh*

Pride and Prejudice: *Jane Austen*

Prince: *Niccolo Machiavelli*

Principia Mathematica: *Bertrand Russell*

Prison Diary: *Jayaprakash Narayan*

Pygmalion: *George Bernard Shaw*

Rabbit, Run: *John Updike*

R Document, The: *Irving Wallace*

Rain King, The: *Saul Bellow*

Rangbhoomi: *Prem Chand*

Rape of Bangladesh: *Anthony Mascarenhas*

Rape of the Lock, The: *Alexander Pope*

Ravan & Eddie: *Kiran Nagarkar*

Rebel, The: *Albert Camus*

Rebirth: *Leonid Brezhnev*

Red and Black, The: *Stendhal*

Red Badge of Courage: *Stephen Crane*

Red Star Over China: *Edgar Snow*

Reflections on the French Revolution: *Edmund Burke*

Remembering Babylon: *David Malouf*

Rendezvous with Rama: *Arthur C. Clark*

Return of the Native, The: *Thomas Hardy*

Revolution from Within: *Gloria Steinem*

Riding the Storm: *Harold MacMillan*

Rights of Man, The: *Thomas Paine*

Rise and Fall Third Reich: *William L. Shirer*

Robe, The: *Lloyd C. Douglas*

Robinson Crusoe: *Daniel Defoe*

Romeo and Juliet: *William Shakespeare*

Room at the Top: *John Braine*

Roots, The: *Alex Haley*

Rubaiyat-i Omar Khayyam: *Edward Fitzgerald*

Saket: *Maithili Sharan Gupta*

Sanctuary: *William Faulkner*

Satanic Verses, The: *Salman Rushdie*

Scam, The: Who Won, Who Lost, Who Got Away: *Debashis Basu and Sucheta Dalal*

Scarlet Letter: *Nathaniel Hawthorne*

Scorpio Illusion, The: *Robert Ludlum*

Second World War, The: *Winston Churchill*

Seven Lamps of Architecture: *John Ruskin*

Seven Summers: *Mulk Raj Anand*

Shadow from Ladakh: *Bhabani Bhattacharya*

Shape of Things to Come: *H. G. Wells*

She Stoops to Conquer: *Oliver Goldsmith*

Siddharta: *Hermann Hess*

Slaughter House Five: *Kurt Vonnegut*

Shoes of the Fisherman, The: *Morris L. West*

Six Characters in Search of an Author: *Lugino Pirandello*

Snow Country: *Yasunari Kawabata*

Social Contract, The: *Rousseau*

Sohrab and Rustam: *Mathew Arnold*

Songs of India, The: *Sarojini Naidu*

Sons and Lovers: *D. H. Lawrence*

Sophie's Choice: *William Styron*

Sound and the Fury, The: *William Faulkner*

Spirit of the Age, The: *William Hazlitt*

Stopping By Woods: *Robert Frost*

Story of My Experiments with Truth, The: *Mahatma Gandhi*

Story of My Life: *Moshe Dayan*

Strange and Sublime Address, The: *Amit Chaudhuri*

Strangers and Brothers: *C. P. Snow*

Strife: *John Galsworthy*

Struggle and the Triumph, The: *Lech Walesa*

Struggle in My Life, The: *Nelson Mandela*

Sunny Days: *Sunil Gavaskar*

Sun Stone: *Octavio Paz*

Swami and Friends: *R. K. Narayan*

ard and the Sickle, The: *Mulk Raj Anand*
 lism: *Sir Walter Scott*
 an of the Apes: *Edgar Rice Burroughs*
 npest: *William Shakespeare*
 nk You, Jeeves: *P. G. Wodehouse*
 Destination of India: *T.N.Seshan*
 Hot Zone: *Richard Prelurid.*
 ory of War: *John Brady*
 Private Life of Chairman Mao: *Dr.Li Zhisui*
 Third Wave: *Alvin Tofler*
 rteenth Sun, The: *Amrita Pritam*
 rn Birds: *Colleen McCullough*
 usand Cranes: *Yasunari Kawabata*
 s Spake Zarathustra: *Friedrich Wihelm*
Nietzsche
 e Machine: *H.G. Wells*
 Drum: *Gunther Grass*
 ker, Tailor Soldier: *John Le-Carre*
 n Jones: *Henry Fielding*
 al Zone, The: *Martina Navaratilova*
 asure Island: *Robert Louis Stevenson*
 e of Man, The: *Patrick White*
 al, The: *Franz Kafka*
 nity: *Leon Uris*
 pic of Cancer: *Henry Miller*
 st with Destiny: *S. Gopalan*
 elfth Night: *William Shakespeare*
 o Leaves and a Bud: *Mulk Raj Anand*
 ysses: *James Joyce*
 cle Tom's Cabin: *Harriet Beecher Stowe*
 o The Last: *John Ruskin*

Untold Story: *General B.M. Kaul*
 Utopia: *Thomas More*

Valley of Dolls: *Jacqueline Susann*
 Vanity Fair: *William Thackeray*
 Vendor of Sweets, The: *R.K. Narayan*
 Very Old Bones: *William Kennedy*
 Vicar of Wakefield, The: *Oliver Goldsmith*
 Victim, The: *Saul Bellow*
 Video Nights in Kathmandu: *Pico Iyer*
 Volcano Lover, The: *Susan Sontag*

Waiting for Godot: *Samuel Becket*
 Wake Up India: *Annie Besant*
 War and Peace: *Leo Tolstoy*
 Waste Land, The: *T.S. Eliot*
 Way of all Flesh, The: *Samuel Butler*
 Wealth of Nations, The: *Adam Smith*
 Westward Ho: *Charles Kingsley*
 We the Nation, The Lost Decades: *N.A.Palkhiwala*
 Whiz Kids, The: *John Byrne*
 Witness to an Era: *Frank Moraes*
 World According to Garp, The: *John Irving*
 World Within Worlds: *Stephen Spender*
 Wuthering Heights: *Emily Bronte*

Yayati: *V.S. Khandekar*
 Year of the Upheaval: *Henry Kissinger*
 Yesterday and Today: *K.P.S. Menon*

Zlata's Diary-A Child's Life in Sarajevo: *Zlata*
Filipovic
 Zulfi, My friend: *Piloo Mody*

Abbreviations

A Alcoholics Anonymous
AAFI The Amateur Athletics Federation
 of India
PSO Afro-Asian Peoples Solidarity
 Organisation
C Atomic Biological and Chemical (Warfare);
 Audit Bureau of Circulation
Ante Christum (Before Christ) Alternating
 Cur rent ;Ashoka Chakra; Air Conditioner.
Anno Domini (in the year of our Lord)
AB Asian Development Bank
C Aide-de-camp (helper or assistant)
G Accountant General; Adjutant General
Anno Hegirae (Mohammed's flight from
 Mecca to Medina, 622 AD)
Artificial Intelligence; Air India
OS Acquired Immune Deficiency Syndrome
FF All India Football Federation
IMS All India Institute of Medical Sciences
NEC All India Newspaper Editors' Conference

AITUC All India Trade Union Congress
AM Ante Meridiem (before noon); Amplitude
 Modulation
AMIE Associate Member of Institute of Engi
 neers
ANC African National Congress
ANZAC Australia, New Zealand Army Corps
ANZUS Australia, New Zealand US (Pacific Pact
 Nations)
AOC Air Officer Commanding
APEC Asia Pacific Economic Cooperation
ASEAN Association of South East Asian Nations
ASLV Augmented Satellite Launch Vehicle
ASSOCHAM Associated Chamber of Commerce
 and Industry
ATC Air Traffic Control
ATS Anti-Tetanus Serum
AU Astronomical Units
AVARD Association of Voluntary Agencies for
 Rural Development

AVSM Ati Vishisht Seva Medal
AWACS Airborne Early Warning And Control System
BARC Bhabha Atomic Research Centre
BBC British Broadcasting Corporation
BC Before Christ
BCG Bacillus Calmette Guerin (anti-TB Vaccine)
BENELUX Belgium, Netherlands and Luxembourg
bhp brake horsepower
BHEL Bharat Heavy Electricals Ltd
BIFR Board for Industrial and Financial Reconstruction
BIS Bank of International Settlement
BOLT Bombay Stock Exchange On-Line Trading; Build-Operate-Lease-Transfer
BP Blood Pressure
bps bytes per second
BRO Border Roads Organisation
BSE Bombay Stock Exchange
BSF Border Security Force
BSkyB British Sky Broadcasting
CA Chartered Accountant
CADA Command Area Development Authority
CAG Comptroller and Auditor General of India
Cantab Cantabrigian (of Cambridge University)
CAPES Computer-Aided Paperless Examination System
C & R control and reporting
CAT Career Aptitude Test; Computerized Axial Tomography (also called CT)
CBA Colliding Beam Accelerator.
CBFC Central Board of Film Certification.
CBI Central Bureau of Investigation
CBM Confidence Building Measures
CD Compact disk; Certificate of deposit
CDM cold dark matter
cf compare / refer (L. Confer)
CFSL Central Forensic Science Laboratory
CGS Chief of General Staff; Centimeter, Gram, Second
CIA Central Intelligence Agency
C-in-C Commander-in-Chief
CID Criminal Investigation Department
cif cost, insurance and freight
CII Confederation of Indian Industry
CIS Commonwealth of Independent States
CITU Centre of Indian Trade Unions
CNN Cable News Network
CO Commanding Officer
COD cash on delivery
CONCORD Council of North Indian States for Co-operation and Regional Development
COPRA Consumer Protection Act
C/o care of
COFEPOSA Conservation of Foreign Exchange and Prevention of Smuggling Act
Costford Centre of Science and Technology for Rural Development

CPI/M Communist Party of India / Marxist
CPWD Central Public Works Department
CRIDA Central Research Institute for Dryland Agriculture
CRIS Centre for Railway Information System
CRISIL Credit Rating Information Services India Ltd.
CRR Cash Reserve Ratio
CSIR Council of Scientific and Industrial Research
CSO Central Statistical Organisation
CT Computerised Tomography.
Cwt Hundredweight (112 lb)
c.v. Curriculum vitae
CVR Cockpit Voice Recorder
DC direct current District of Columbia
D & C Dilation and Curettage
DDT Dichloro-diphenyl-trichloro-ethane
DG Dei gratia (by the grace of God)
DIG Deputy Inspector General
D.Litt. Doctor of Literature
DMK Dravida Munetra Kazhagam
DNA Deoxyribo-nucleic Acid
D.Phil. Doctor of Philosophy
DPT Diphtheria, pertussis and tetanus (vaccine)
D.Sc Doctor of Science
DTP Desk Top Publishing
DV Deo Volente (God willing)
ECA Essential Commodities Act
ECG Electro Cardiogram
ECOSOC Economic and Social Council (UN)
EEG Electro Encephalogram
EFTA European Free Trade Association
e.g. exempli gratia (for example)
ELISA Enzyme Linked Immuno-Sorbent Assay
ELINT Electronic Intelligence
ELT English Learning and Teaching
E-MAIL Electronic Mailing
ENIAC Electronic Numerical Integrator and Calculator
ENS Eastern Newspapers Society
E & OE Errors and Omissions Excepted
EOU Export Oriented Unit
EPABX Electronic Private Automatic Branch Exchange
EPZ Export Processing Zone
ERM European Exchange Rate Mechanism
ESA European Space Agency
ESCAP Economic and Social Commission for Asia and the Pacific
ESP Extra Sensory Perception
etc. et cetera (and others and so forth)
et. seq. et sequentia (& what follows)
EURATOM European Atomic Community
EVR Electrovideo Recording
Ex-officio By virtue of one's office
FAO Food and Agriculture Organisation
FAQ Fair Average Quality
FBI Federal Bureau of Investigation

- TR** Fast Breeder Test Reactor
V Fly-By-Wire
Food Corporation of India; Fertilizer Corporation of India
NRA Foreign Currency Non-Resident Accounts
RA Foreign Exchange Regulation Act
CI Federation of Indian Chambers of Commerce and Industry
A International Football Federation
Foreign Institutional Investors
First Information Report
Frequency modulation
o free on board
r free on rail
CP Fellow of the Royal College of Physicians
CS Fellow of the Royal College of Surgeons
GS Fellow of the Royal Geographical Society
S Fellow of the Royal Society
II Films and Television Institute of India
Group of Seven (US, UK, Germany, France, Italy, Japan and Canada)
TE Graduate Aptitude Test in Engineering
TS General Agreement on Trade in Services
TT General Agreement on Tariffs and Trade
CC Gulf Control Council
DP Gross Domestic Product
OR Global Depository Receipt
EF Global Environment Fund
Q General Headquarters
Government Issue (American soldiers)
S Geographical Information System
ST Graphics and Intelligence-based Script Technology
MAT Graduate Management Aptitude Test
MRT Giant Metrewave Radio Telescope
MT Greenwich Mean Time
NP Gross National Product
RE Graduate Record Examination
SI Geological Survey of India
SP Generalised System Preference
SLV Geo-Synchrons Satellite Launch Vehicle
VW Gross Vehicle Weight
AL Hindustan Aeronautics Limited.
F High Frequency
IV Human Immunodeficiency Virus
MI Himalaya Mountaineering Institute
on honourable Honorary
o horse power
SD High Speed Diesel
T High Tension
TR High Temperature Reactor
UDCO Housing and Urban Development Corp.
V High Voltage
A Indian Airlines
AI International Airport Authority of India
A&AS Indian Audit and Accounts Services
AEA International Atomic Energy Agency
MR Institute of Applied Manpower Research
ARI Indian Agricultural Research Institute
IAS Indian Administrative Services
IATA International Air Transport Association
ib;ibid Ibidem, (in the same place (book or chapter))
IBM International Business Machines
IBRD International Bank for Reconstruction and Development
ICAO International Civil Aviation Organisation
ICAR Indian Council of Agricultural Research
ICBM Inter-Continental Ballistic Missile
ICCR Indian Council for Cultural Relations
ICICI Industrial Credit Investment Corp. of India
ICJ International Court of Justice
ICMR Indian Council of Medical Research
ICPD International conference on Population and Development
ICRA Investment Information and Credit Rating Agency of India
ICWA Indian Council of World Affairs
ICWAI Institute of Cost and Works Accountants of India
IDA International Development Agency
IDBI Industrial Development Bank of India
i.e. id est (that is)
IFAD International Fund for Agricultural Development
IFC Industrial Finance Corporation; International Finance Corporation
IFRI Indian Forest Research Institute
IFS Indian Foreign Service; Indian Forest Service
IGF India Growth Fund
IGIDR Indira Gandhi Institute of Development Research
IGNOU Indira Gandhi National Open University
IIPA Indian Institute of Public Administration
IISCO Indian Iron and Steel Company
IIT Indian Institute of Technology
ILO International Labour Organisation
IMCO Inter-government Maritime Consultations Organisation
IMF International Monetary Fund
INA Indian National Army.
in cog in cognito (in disguise)
INS Indian Newspaper Society.
INSDC Indian National Scientific Documentation Centre.
INTACH Indian National Trust for Art and Cultural Heritage.
INTUC Indian National Trade Union Congress.
INDIPEX Indian International Philatelic Exhibition.
INSAT Indian National Satellite.
INTACH Indian National Trust for Art and Cultural Heritage
INTELSAT International Telecommunication Satellite.
INTERPOL International Police.
infra dig infra dignitatum (below status)

IOC Indian Oil Corporation.
IOU I Owe You.
IPC Indian Penal Code.
IPCD International Conference on Population Development
IPCL Indian Petro-Chemicals Corporation Ltd.
IPS Indian Police Service; Inter Press Service.
IQ Intelligence Quotient.
iq idem quod (the same as)
IRA Irish Republican Army.
IRC International Red Cross.
IRBM Intermediate Range Ballistic Missile.
IRDP Integrated Rural Development Programme.
IREDA Indian Renewable Energy Development Agency.
IRRI International Rice Research Institute.
IRS Indian Revenue Service.
ISRO Indian Space Research Organisation.
ISI Indian Standards Institution.
IST Indian Standard Time.
ITBF Indo-Tibetan Border Force.
ITI Indian Telephone Industries; Industrial Training Institute.
ITU International Telecommunication Union
IUCD Intra-Uterine Contraceptive Device
IUI Intrauterine Insemination
IVF In Vitro Fertilisation
JCO Junior Commissioned Officer
JIPMER Jawaharlal Nehru Institute of Post graduate Medical Education and Research
J P Justice of the Peace
KG Knight of the Garter; Kindergarten
KGB Komitet Gosudarstvennoy Bizo Pasmoti (Russian Secret Police)
KKK Ku Klux Klan (U.S. Secret Society - Anti-Negro, Anti-Jewish)
KMT Kuomintang (Chinese National Party)
KRC Konkan Railway Corporation
LASER Light Amplification by Stimulated Emission of Radiation
LCA Light Combat Aircraft.
LERMS Liberalised Exchange Rate Management Scheme
LIC Life Insurance Corporation (of India)
LIPS Language Independent Programme Sub-titles
LL.B Bachelor of Laws
LMC Large Megallanic Cloud.
Loc cit Loco citato (at the place quoted)
LPG Liquefied Petroleum Gas
Lt.Col Lieutenant Colonel
LSD Lysergic acid di-ethylamide
M Monsieur (Mister)
M1 Money supply with public
M3 Aggregate monetary resources
M.A. Magister Artium (Master of Arts)
MASER Micro-wave Amplification by Stimulated Emission of Radiation
MBA Master of Business Administration

MBBS Bachelor of Medicine and Bachelor of Surgery
MCC Marylebone Cricket Club
M.D Doctor of Medicine
MFN Most Favoured Nation
Mile Mademoiselle (Miss)
Mme Madam (Mrs.)
MI Military Intelligence
MISA Maintenance of Internal Security Act
Misc Miscellaneous
MIT Massachusetts Institute of Technology, U
MKS Metre Kilogram Second (System)
MLA Member of Legislative Assembly
MMTC Minerals and Metals Trading Corporation
MNC Multi-National Corporation
MODEM modulator demodulator
MODVAT Modified Value Added Tax
MOU Memorandum of Understanding
MP Member of Parliament; Madhya Pradesh
mph miles per hour
MRA Moral Re-Armament
MRCP Member of the Royal College of Surgeons
MRTPC Monopoly & Restrictive Trade Practices Commission
MS/MSS Manuscript/ Manuscripts
MTCR Missile Technology Control Regime
MVC Maha Vir Chakra
NAA National Airports Authority
NABARD National Bank for Agriculture and Rural Development
NAFED National Agricultural Co-operative Marketing Federation
NAFTA North American Free Trade Agreement
NASA National Aeronautics and Space Administration
NASDAQ National Association of Securities Dealers Automated Quotation
NATO North Atlantic Treaty Organisation
NATPAC National Transportation Planning and Research Centre
NAV Net Asset Value
NB Nota Bene (note well)
NCC National Cadet Corps
NCAER National Council of Applied Economic Research
NCERT National Council of Educational Research and Training
NCO Non-Commissioned Officer
NDA National Defence Academy
NDC National Development Council
NGO Non-Government Organisation; Non-Gazetted Officer
NIMHANS National Institute of Mental Health And Neuro Sciences
NMDC National Mineral Development Corporation
NMR Nuclear Magnetic Resonance
NOC No Objection Certificate
NPT Nuclear Non-Proliferation Treaty

- C National Productivity Council (India)
 F National Renewal Fund
 E National Stock Exchange
 EI National Stock Exchange of India
 UI National Students Union of India
 PC National Thermal Power Corporation
 M Organisation & Methods
 APEC Organisation of Arab Petroleum Exporting Countries
 AS Organisation for American States
 AU Organisation of African Unity
 BE Officer (of the Order of the) British Empire
 CD Obsessive Compulsive Disorder
 ECD Organisation for Economic Co-operation and Development
 GL Open General Licence
 C Organisation of Islamic Conference
 K All Correct (slang)
 PEC Organisation of Petroleum Exporting countries
 XFAM Oxford Committee for Famine Relief
 Oxon Oxoniensis (of Oxford University)
 GS On India Government Service
 NGC Oil and natural Gas Corporation
 p. cit. Opero citato (in the work cited)
 AC Public Accounts committee
 AL Phase Alternation Line
 AYE pay as you earn
 C Per centum; post card
 DA Preventive Detention Act
 EC Project and Equipment Corporation
 EN (International club of) Poets, Playwrights, Essayists, Editors and Novelists
 Perks Perquisites of office
 ERT Project Evaluation and Review Technique
 GIMER Post Graduate Institute of Medical Education and Research.
 Ph.D. Doctor of Philosophy
 HDCCI Punjab, Haryana, Delhi Chamber of Commerce and Industries
 IB Press Information Bureau
 IN Postal Index Number
 L480 Public Law 480
 M Post Meridiem; Prime Minister
 MG Post Master General
 OW Prisoner of War
 PP Purchasing power parity
 PS Post Post Scriptum (additional post script)
 ROLOG Programming logic
 pro-tem Pro tempore (for the time being)
 S Post Scriptum (written after); Private Secretary
 SLV Polar Satellite Launch Vehicle
 TI Press Trust of India
 TO Please Turn Over
 VC Poly vinyl Chloride; Param Vir Chakra
 VSM Param Vishisht Seva Medal
 WD Public Works Department
 Queue
 ed Quod Erat Demonstrandum (that which was to be demonstrated)
 QMG Quarter Master General
 qv quod vide (which see)
 RADAR R-adio Detecting and Ranging
 RAM Random Access Memory
 R&D Research and Development
 R&M Renovation and Modernisation
 RAW Research & Analysis Wing
 RBI Reserve Bank of India
 RCC Reinforced Cement Concrete
 RD refer to drawer
 RDX Research and Development Explosive (Cyclotrim-ethylin Trinitrate)
 REM rapid eye movement
 RIP Requiescat in pace (May he or she rest in peace)
 RITES Rail India Technical & Economic Services
 RLO Returned Letters Office
 RMS Railway Mail Service
 RNA Ribonucleic acid
 ROM Read Only Memory
 RPM Revolutions Per Minute
 RSE Renewable Source of Energy
 RSVP Respondez Sil vous Plait (Reply if you please)
 RSS Rashtriya Swayam Sewak Sangh
 SAC Space Application Centre
 SAIL Steel Authority of India Limited
 SAPTA South Asian Preferential Trade Agreement
 SAM Surface to Air Missile
 SASER Sound Amplification by Stimulated Emission of Radiation
 S & T Science and Technology
 SCI Shipping Corporation of India
 SDR Special Drawing Rights
 SEANWFZ South East Asia Nuclear Weapons Free Zone.
 SEBI Securities and Exchange Board of India
 SECAM Sequence Electronique Couleur avec Memoire (Electronic Colour Sequence with Memory)
 SENSEX Sensitivity Index of Share Price
 SETL Search for Extraterrestrial Life
 SGPC Siromani Gurudwara Prabandak Committee
 SHAPE Supreme Headquarters Allied Powers, Europe
 SIDS Sudden Infant Death Syndrome (Crib Death)
 SITE Satellite Instructional Television Experiment
 SKO Superior Kerosene Oil
 SLE Systemic Lupus Erythematosus
 SLFP Sri Lanka Freedom Party
 SLR Statutory Liquidity Ratio; Single Lens Reflex
 SLV Satellite Launch Vehicle
 SOLAS Safety of Life at Sea.
 SPCA Society for the Prevention of Cruelty to

- Animals
SPECT Single Photon Emission Computed Tomography
SPTM Self-Printing Ticketing Machine
STARS Satellite Tracking and Ranging Station
START Strategic Arms Reduction Treaty
STAR(TV) Satellite Television Asian Region Ltd.
STC State Trading Corporation
STD Subscriber Trunk Dialling; Sexually Transmitted Diseases
STP Software Technology Park
STQC Standardization Testing and Quality Control
SUNFED Special United Nations Fund for Economic Development
SVP Saturated Vapour Pressure
TA Territorial Army; Travelling Allowance
TAAI Travel Agents Association of India
TAPS Tarapur Atomic Power Station
TASS Telegraph Agency of the Soviet Soyuz
TB Tuberculosis
T & D Transmission & Distribution
TDA Trade Development Authority
TEC Technical Evaluation Committee
TELCO Tata Engineering and Locomotive Company
TIFACD Technology and Information Forecasting and Assessment Council of the Department
TIFR Tata Institute of Fundamental Research
TIPS Technology Information Pilot System
TISCO Tata Iron and Steel Company
TLC Total Literacy Campaign
TMO Telegraphic Money Order
TNF Tumour Necrosis Factor
TNT Trinitro-toluene
TERLS Thumba Equatorial Rocket Launching Station
TOFEL Test of English as a Foreign Language
TPM Total Productivity Maintenance
TQM Total Quality Management
TRACT Transportable Remote Area Communications Terminal
TRIMS Trade Related Investment Measures
TRIPS Trade Related Intellectual Property Rights
TRYSEM Training of Rural Youth for Self-employment
TTC Telemetry, Tracking & Command
TTE Travelling Ticket Examiner
TTF Tourism Task Force
TULF Tamil United Liberation Front
TWT Two Way Time
UCIL Uranium Corporation of India Ltd.
UGC University Grants Commission
UHF Ultra High Frequency
UNCED UN Conference on Environment & Development
UNCIP United Nations Commission for India & Pakistan
UNCSTD United Nations Conference on Science & Technology for Development
UNCTAD United Nations Conference on Trade and Development
UNEP United Nations Environment Programme
UNCTAD United Nations Conference on Trade and Development
UNESCO United Nations Educational, Scientific and Cultural Organisation
UNI United News of India
UNICEF United Nations International Children's Emergency Fund, (presently, 'United Nations Children's Fund')
UNIDO United Nations Industrial Development Organisation
UNIPOM United Nations India-Pakistan Observation Mission
UNITA Union for the Total Independence of Angola
UNOPS UN Office for Project Services
UNPROFOR UN Protection Force
UNRRA United Nations Relief and Rehabilitation Administration
UPSC Union Public Service Commission
USAID United States Agency for International Development
USO Udaipur Solar Observatory
VABAL Value Based Advance Licensing
VAT Value Added Tax
VBT Vainu Bappu Telescope
VC Vice-Chancellor, Victoria Cross
VCR Video Cassette Recorder
VD Venereal Disease (see STD)
VHRR Very High Resolution Radiometer
VHS Video Home System
VIP Very Important Person
VPP Value Payable Post
Vr.C Vir Chakra
VSAT Very Small Aperture Terminal
VSSC Vikram Sarabhai Space Centre
VTR Video Tape Recorder
WARDEC Wargaming Development Centre
WAY World Assembly of Youth
WDM World Debt Market
WFTU World Federation of Trade Unions
WG Working Group
WHO World Health Organisation
WIMPs Weakly Interacting Massive Particles
WMO World Meteorological Organisation
WPI Wholesale Price Index
WTO World Trade Organisation
WWF World Wildlife Fund, now renamed World Wide Fund for Nature
Xmas Christmas
YMCA Young Men's Christian Association
YWCA Young Women's Christian Association
ZIFT Zygote Intrafallopian Transfer
ZIP Zone Improvement Plan
ZOPFAN Zone of Peace Freedom and Neutrality.

Who's Who

ABDUL KALAM, DR. AVUL PAKIR JAINU-LABDEEN (b.1931) The man behind India's missile programme. Known for his dedication to science, commitment to professional excellence and simplicity of lifestyle.

ABDULLAH, SHEIKH (1906-1982): Indian national leader and founder of National Conference. Chief Minister of Jammu & Kashmir. Guided the destiny of Kashmir for five decades.

ABUBAKR (573-634): Moslem leader, first caliph, chosen successor to Mohammed.

ABUL FAZAL (1551-1602): Persian scholar and writer, patronised by Akbar. *Akbar Nama, Ain-i-Akbari*.

ACHEBE, CHINUA (b.1930): Well-known novelist of Nigeria. *Arrow of God, No Longer at Ease, A Man of the People*.

ACTON, JOHN (1834-1902): British historian and Catholic moralist who challenged papal infallibility and authored the adage "power tends to corrupt and absolute power corrupts absolutely".

ACTON, SIR HAROLD (1905 - 1994): Historian and art collector who epitomized the British upper crust, left his art filled estate in Italy to New York University. The estate has 5 magnificent villas on 57 acres, superb art collection and a \$25 m endowment.

ADAMS, GERRY (b.1949): President of Irish Republican Army's political wing Sinn-Fein.

ADLER, ALFRED (1870-1937): Viennese psychologist who thought up the inferiority complex.

ADVANI, LAL KISHINCHAND (b.1927): Indian leader, Bharatiya Janata Party President. Union Minister of Information, Mar. '77-July '79.

AESCHYLUS (524-456 B.C.): Greek dramatic poet, founder of Greek tragic drama. *The Seven against Thebes, Prometheus Bound*.

AESOP (6th cent. B.C.): Semi-historical, semi-legendary fabulist, originally a slave. Author of moralizing beast fables like *The Fox and the Grapes and The Tortoise and the Hare*.

AGA KHAN IV (b. 1936): Spiritual head of about 20 million Shia Ismaili Muslims in the world. Chosen the 49th hereditary Imam in 1957. 'Agakhan' means 'honourable Chief' in Mongol.

AGASSI, ANDRE (b.1970): American tennis star. Won Wimbledon (92), US Open (94), Australian Open (95). First unseeded player in 115-year-old history of US Open to beat four seeded players. Career earnings: \$8.5 m.

AGNELLI, GIOVANNI (b.1921): President of Fiat, Italy's largest private company; about

the nearest that republican Italy gets to royalty.

AHMED, FAKRUDDIN ALI (1905-1977): Fifth President of Indian Republic (1974-77). Was active in the freedom movement; Union Minister from 1966.

AIKEN, HOWARD H. (1900-1973): of USA; mathematician, credited with designing forerunner of digital computer.

AKBAR, JALAL-UD-DIN MOHAMMED (1542-1605): Mogul emperor of India, known as Akbar the Great. He extended the imperial power over much of India, stabilised the administration, promoted commerce and learning, showed a receptive interest in Hinduism and Christianity.

AKILAN (or Akilandam, P.V.) (1922-88): Noted Tamil author. Jnanpith award. *Chittirappavai, Kayalvizhi*.

AKUTAGAWA RYUNOSUKE (1892-1927): Japan's most celebrated writer, dealt with madness and macabre social contradictions. Committed suicide. Akutagawa Prize is Japan's top literary award. 'Kappa', 'Rashomon'.

ALEXANDER THE GREAT (356-323 B.C.): Greek conqueror, educated by Aristotle; king of Macedonia; conquered south-west Asia and Egypt; founded Alexandria; penetrated to India; died at Babylon.

ALFRED THE GREAT (849-899): King of Wessex who became a national figure. His own translations from Latin form part of the earliest English literature.

ALLENDE, SALVADOR (1909-73): Chilean statesman; Elected President (1970), becoming the first Marxist head of government in S. America. Died in military coup.

AMBANI, DHIRUBHAI (DHIRAJLAL HIRACHAND) (b. 1932): Leading Indian industrialist; included in *Forbes* list of billionaires. His Reliance Industries is the largest private sector company in India.

AMBEDKAR, BHIMRAO RAMJI (Dr.) (1891-1956): Indian jurist, social worker, politician, writer, educationist. Emancipator of the 'untouchables' and crusader for social justice. Framed the Indian constitution. Minister in Nehru's cabinet. Bharat Ratna (posthumous), 1990.

AMIN, IDI (b. 1925): President of Uganda (1971-79) who ordered, in 1972, deportation of 50,000 Asian residents. Regime notorious as one of modern Africa's harshest dictatorships. Overthrown.

AMPERE, ANDRE MARIE (1775-1836): French physicist after whom the unit of electric

current is named. Propounded the theory that magnetism is the result of molecular electric currents.

AMRITA PRITAM (b. 1919): Indian poetess and novelist. Jnanpith award, 1981. *Kagaz ke Kanwaz*.

AMRIT Kaur, RAJKUMARI (1887-1964): Indian freedom fighter. Health Minister in the Nehru Cabinet.

AMRITRAJ, VIJAY (b. 1953): Top world tennis player from India. India's Captain to Davis Cup from 1982. Only player to win Hall of Fame Tennis thrice.

AMTE, MURLIDHAR DEVIDAS (BABA AMTE) (b. 1914): Indian social activist, best known for his work among leprosy patients. Recipient of several awards.

AMUNDSEN, ROALD (1872-1928): Norwegian explorer, first to reach South Pole (1911), 35 days ahead of R.F. Scott, and first to navigate Northwest Passage (1903-6). Flew over North Pole (1926) with Umberto Nobile.

ANAND, Dr. MULK RAJ (b. 1905): Indian author, novelist, critic who writes in English. *The Bubble, Confessions of a Lover, Seven Summers, Coolie, Untouchable, Two Leaves and a Bud*.

ANAND, DEV (b. 1992): Evergreen Indian Film Star, credited with the longest period as hero.

ANAND, VISVANATHAN (b. 1969): The wonderkid of chess from India. No. 4 in the world. Youngest Asian to win International Master's title; National title, 1986. won 3 National Championships two times each. Runner up to Kasparov in World Championship final, 1995. Arjuna award, 1985; Padmashri, 1988.

ANDERSON, MARIAN (1897-93): American contralto, who pioneered acceptance of black singers in concert and opera worlds.

ANDREWS, CHARLES FREER: (1871-1940): Englishman who adopted India as his home, and worked with Gandhi. Went to S. Africa to help Indians. Known as 'Deenabandhu'.

ANDROPOV, YURI (1914-84): Russian statesman. Succeeded Brezhnev as Secretary-General of C.P.S.U., 1982; State President, 1983-84.

ANDERSON, HANS CHRISTIAN (1805-1875): Danish fairy-tale writer, novelist, playwright and poet; a passionate traveller. *The Little Mermaid, The Snow Queen, The Ugly Duckling*.

ANNADURAI, C.N. (1909-1969): The most popular Chief Minister (1967) of Tamil Nadu, India. Associated with Dravida Kazhakam, founded by E. V. Ramaswamy Naicker, his political guru. Formed Dravida Munnetra Kazhakam. An eminent writer in Tamil. '*Velaikkari, Or Iravu*'.

ANNENBERG, WALTER (b. 1908): American philanthropist whose fortune was built on pub-

lishing and broadcasting interests. In 1993 alone he awarded \$1 billion to education.

ANNE, QUEEN (1665-1714): Queen of Gt. Britain and Ireland. Her reign was notable for literary output, development in science, architecture, and for victories in war.

ANTONIONI, MICHELANGELO (b. 1911): Living legend of Italian cinema and one of the pioneers of world cinema. 'The Night', 'Street Cleaners', 'Story of a Love Affair', 'The Cry'. Oscar, 1995 for lifetime career.

ANTONIUS MARCUS (MARK ANTONY) (c. 83-30 B.C.): Roman politician and general; triumvir. He supported Caesar, was opposed by Brutus and Cassius later, and defeated by Octavian; Fell in love with Cleopatra; committed suicide.

ANTONY, ST. (c. 251-356): Father of Christian monasticism and founder of religious community life.

APACHE INDIAN (STEVEN KAPOOR) (b. 1967): British—born Sikh Pop Star; the short haired sensation, with his reggae—rap brand of bop is among the international pop singers.

AQUINAS, THOMAS, St. (c. 1225-74): Italian theologian and scholastic philosopher, whose philosophico-theological system, Thomism, is still active. *Summa contra Gentiles, Summa Theologica*.

ARAFAT, YASSER (b. 1929): (Mohammed Abdel-Raouf Arafat al-Oudwa al-Husseini) Palestinian President; Leader of PLO from 1968, head of al-Fatah, PLO's largest guerrilla group.

ARCHIMEDES (287-212 B.C.): The most inventive of ancient Greek mathematicians, remembered for his contributions to pure mathematics, mechanics, and hydrostatics, notably the (so called) Archimedean screw for raising water (—this has been questioned—), the conception of specific gravity, the doctrine of levers, and the measurement of curved areas.

ARISTOTLE (384-322 B.C.): Greek teacher and philosopher, pupil of Plato, tutor to the young prince Alexander of Macedon. At Athens he established the Lyceum.

ARMSTRONG, NEIL (b. 1930): American astronaut, the first man to set foot on the moon, 21 July 1969.

ARNALKAR, BABOORAO (b. 1906): Indefatigable author. 1200 novels, short stories and plays that cover 40m. words. Mainly crime fiction, in Marathi.

ARUNDALE, GEORGE SYDNEY (1878-1945): An Englishman who adopted India as his home and identified himself with Indians. A fervent advocate of national education and the Swadeshi movement. Married Rukmini Devi.

ARYABHATTA (476-520): Indian mathematician and astronomer. India's first satellite was named after him.

ASAF ALI, ARUNA (b. 1909): Indian freedom fighter; Mayor of Delhi, 1958. A devoted socialist, radical in her views. Active in public life for several decades.

ASAN, KUMARAN (1873-1924): Renowned Indian (Malayalam) poet and social worker. 'Karuna', 'Veena Poovu', 'Duravastha'.

ASHAPURNA DEVI (1909-95): A legend in Bengali literature; won Jnanpith award in 1977. Began writing at 13. At 85, won Sahitya Akademi Fellowship. Over 200 books including 152 novels. *Pratham Pratishruti*, *Subarnalata*, *Bakulkatha* — the trilogy which made her famous.

ATATURK, KEMAL (1881-1938): Builder of modern Turkey, fine soldier, President of the Turkish Republic, 1923-38.

ATTENBOROUGH, SIR RICHARD (b. 1923): British actor-director whose 'Gandhi' (1983) won 8 Oscars.

ATTILA THE HUN (406-53): Barbarian leader who helped to bring about the fall of the Roman Empire. An outstanding general and supreme king in central Europe from 441, he led the Huns, a nomadic people in invading the eastern provinces of the empire and then into Gaul and Italy.

ATLEE, CLEMENT RICHARD (1883-1967): Labour Prime Minister of Britain, 1945-51. His Government granted independence to India. As *it Happened*, *Empire into Commonwealth*.

AUDEN, WYSTAN HUGH (1907-73): poet, b. in England and naturalised an American. Professor of poetry at Oxford.

AUGUSTUS, CAIUS OCTAVIANUS (63 B.C.-A.D. 14): First Roman emperor. His reign was notable for peace, and for writers like Horace and Virgil, hence Augustan age for a great period in literature.

AURANGZEB (1618-1707): Mogul emperor of India; he obtained power by acting against his father. Mogul empire reached its fullest extent, but he estranged Hindus and Sikhs; when he died, the Mogul empire broke up.

AUROBINDO, SRI (AUROBINDO GHOSH) (1872-1950): Indian philosopher who was a revolutionary in his early days. Arrived in Pondichery in 1910 and set up an Ashram there. Retired into seclusion in 1926. *Life Divine*, *Essays on Gita*.

AUSTEN, JANE (1775-1817): British novelist. *Emma*, *Mansfield Park*, *Northanger Abbey*, *Persuasion*, *Pride and Prejudice*, and *Sense and Sensibility*.

AYER, FRANCIS W. (1848-1923): of USA. Ad industry pioneer.

AYUB KHAN, MOHAMMED (1907-74): Pakistani military leader; President of Pakistan, 1958-69.

AYYANKALI (1863-1941): Indian leader of Harijans. Mahatma Gandhi called him 'pulayaraja'. Great organiser.

AYYAR, ALLADI KRISHNASWAMI, SIR (1883-1953): Scholar and brilliant lawyer of Tamil Nadu. Rose from penury to opulence through the legal profession.

AZAD, ABUL-KALAM (1888-1958): Indian freedom-fighter, staunch nationalist; first Education Minister of free India. Bharat Ratna (posthumous), 1992. *India Wins Freedom*.

AZAD, CHANDRA SEKHAR (1906-1931): Indian revolutionary; involved in Non-Cooperation Movement, the Assembly bomb incident, Delhi conspiracy, Lahore conspiracy, etc; died fighting a lone battle with police.

BABAR, ZAHIR UD-DIN MOHAMMED (1483-1530): Founder of the Mogul dynasty which ruled northern India for nearly three centuries.

BACH, JOHANN SEBASTIAN (1685-1750): Composer of Germany, who was successively violinist, church organist, and chief court musician.

BACHCHAN, AMITABH (b. 1942): India's most popular film star ever. Over 80 movies. M.P. for a short while.

BACHENDRI PAL (b. 1956): The first Indian woman and the fifth woman in the world to scale the Everest (1984). A college lecturer of Uttarkashi (U.P.).

BACON, FRANCIS (1561-1626): English philosopher and essayist. He rejected the Aristotelian deductive logic for the inductive method. *Novum Organum*.

BADEN-POWELL, ROBERT (1857-1941): Founder of Boy Scouts (1908) and Girl Guides (1910) to promote good citizenship in the rising generation. Received many honours, and wrote several works.

BAHUGUNA, SUNDARLAL (b. 1927): Noted environmentalist. Known for the Chipko movement and his long fasts to prevent the building of the Tehri Dam.

BAJAJ, JAMNALAL (1886-1942): Mahatma Gandhi's associate, Congress Treasurer from 1920, founded Satyagraha Ashram at Wardha; Gifted Segaon village to Gandhi who named it Sevagram.

BAKER, LAURIE (b. 1917): Well-known Indian architect who has pioneered low-cost housing. Born in Britain, granted Indian citizenship in 1989. Winner of UNO Habitat Award and Indian National Habitat Award.



Aurangzeb

BALZAC, HONORE DE (1799-1850): French novelist of wide influence, and author of over 80 novels known collectively as *La Comedie Humaine*.

BANABHATTA (7th c.): Indian Sanskrit scholar and poet. *Kadambari, Harsh Charit*.

BANCROFT, GEORGE (1800-91): American historian who wrote the 10-volume *History of the United States*.

BALA SARASWATI (b. 1918): Foremost exponent of Bharatanatyam style of dance.

BANDARANAIKE, SOLOMON (1899-1959): PM of Ceylon from 1956 until assassination. Widow Sirimavo became world's first woman PM, 1960. Now daughter Chandrika is President and Sirimavo PM of Sri Lanka.

BANDYOPADHYAY, RAKHAL DAS (1885-1930): Archaeologist, known for excavation at Mohenjodaro.

BARNARD, CHRISTIAN NEETHLING (b. 1922): S.African surgeon who performed the first human heart transplant operation (Capetown, Dec. 1967).

BASHIR, VAIKOM MOHAMMED (1908-1994): Legendary Malayalam writer; freedom fighter. A man of varied experiences, loved by millions. Written 32 books : *Balyakalasakhi, Pathummayude Adu*.

BAYER, YVETTE (b. 1893): French missionary in India. Left France 70 years ago, worked among the Harijans in Nagpur for 26 years. In 1949, moved to Ahmedabad to work for the patients of Govt. Leprosy Hospital. Known as 'Mother Bayer'.

BEATLES, THE (PAUL McCARTNEY, JOHN LENNON, GEORGE HARRISON, RINGO STARR): English vocal and instrumental rock 'n'roll quartet whose highly original and melodic songs held the attention of youth all over the world, especially during 1963-65. All the four were born in Liverpool. They parted in 1971 and went separate ways. Lennon (whose wife is artist Yoko Ono) was shot dead in New York in 1980.

BECKET, THOMAS (1118-70): Saint and martyr. Archbishop of Canterbury who made the position of the church his first care and, came into conflict with King Henry II. Murdered in Canterbury cathedral.

BECKER, BORIS (b. 1967): West German tennis player. Youngest Wimbledon champion, 1985, 1986, 1989.

BEDI, BISHEN SINGH (b. 1946): Indian cricketer. One of the greatest. Slow left arm spin bowler. Captain for 33 tests.

BEDI, Ms. KIRAN (b. 1949-): First woman Indian Police Service officer (1972). A former Asian Games women's tennis champion. Magsaysay award in 1995.

BEETHOVEN, LUDWIG VAN (1770-1827): The most celebrated musician and composer

from Germany, considered by many the greatest composer who ever lived. Settled in Vienna. His symphonies, nine in number, rank as the greatest ever written.

BEGIN, MENACHEM (1913-1992): Israeli politician, leader of the Likud bloc; prime minister, 1977-83. Made peace with Egypt (1979). Nobel peace prize, 1978.

BELAFONTE, HARRY (b. 1927): American entertainer, civil rights leader and Goodwill Ambassador for UNICEF.

BELL, ALEXANDER GRAHAM (1847-1922): British inventor of the telephone. American citizen born in Britain.

BENEGAL, SHYAM (b. 1934): Prominent Indian film director. *Akrosh, Mandi, Bharat Ek Khoj, Suraj ka Satva Ghoda*.

BEN GURION, DAVID (1886-1973): The first Prime Minister of Israel, 1948-63.

BERTOLUCCI, BERNARDO (b. 1940): Film director of Italy, whose "The Last Emperor" won 9 Oscars in 1987.

BESANT, ANNIE (1847-1933): An Irish woman who became a staunch supporter of Indian independence movement. Social worker, educationist and reformer. Set up Home Rule League. President of Indian National Congress, 1917. Established Indian Boy Scouts' Association and Theosophical Society of India.

BESSEMER, SIR HENRY (1813-98): British industrialist and metallurgist who invented the process of converting cast-iron direct into steel.

BHABA, HOMI J. (1909-1966): The Indian scientist who was mainly responsible for creating the Bhaba Atomic Research Centre. Described as the father of Indian nuclear science. Died in an air crash.

BHAGWANDASS, Dr. (1869-1958): Vedic scholar, Indian freedom fighter. Bharat Ratna, 1955.

BHAGWATI, PROF. JAGDISH (b. 1934): India-born U.S. academic Professor of Trade Economics at Columbia University. Since May 91, Economic Policy Adviser to D-G of GATT.

BHARATI, SUBRAMANYA (1881-1921): Indian poet, patriot and philosopher. His impact on Tamil literature is great.

BHARAT MUNI (5th c.): Sanskrit writer. *Natya Shastra*.

BHASA (5th c.): Sanskrit playwright. *Swapna Yaugandharayana, Charudatta*.

BHATNAGAR, SHANTI SWARUP (1894-1955): Indian scientist and science administrator, who created a chain of national laboratories. Director of CSIR, Secretary to Ministry of Education and Minister of Natural Resources and Sci. Research, Secretary to AEC, Chairman of UGC, etc. Science awards after his name.

BHATT, ELA (b. 1933): Great emancipator of women in the self-employed sector. Path-

breaking work with trade union of poor women. Magsaysay award, 1977.

BHAVABHUTI (8th c.): A great Sanskrit dramatist. *Malatimadhava*.

BHAVE, VINOBA (1895-1982): Disciple of Gandhi who led the Bhoodan movement for the peaceful transfer of land to the landless. In 1951 he began a walking mission to persuade landlords to donate land. Bharat Ratna (posthumous), 1983. Winner of the first Magsaysay award (1955).

BHUTIA, BAICHU-NG (b. 1976): Indian teenager from Sikkim, the darling of football fans across the country, described by some as the best footballer India has produced. At 15, he was the highest goal-getter in the Subroto Mukherjee tournament in Delhi. Entering big-time football at 16, he became the youngest player to feature in a tournament final.

BHUTTO ZULFIKAR ALI (1928-1979): Prime Minister of Pakistan who was removed from his post in a military coup (1977) by Gen. Zia-ul-Haq whose government executed him.

BISMARCK, OTTO VON (1815-98): German statesman, chief architect of the German empire, known as 'the man of blood and iron'.

BOCCACCIO, GIOVANNI (1313-75): Italian author and humanist; father of the novel. *Decameron, Life of Dante*.

BOHR, NIELS (1885-1962): Danish physicist. Nobel Prize, 1922 for his contributions to the understanding of the atom.

BOLEYN, ANNE (1507-36): Queen of Henry VIII of Britain and mother of Queen Elizabeth. Beheaded.

BOLIVAR, SIMON (1783-1830): South American revolutionist, called the Liberator. He founded Grand Colombia (now Venezuela, Colombia, Panama, Ecuador). Revered as a Latin American hero.



Sultan of Brunei

BOLKIAH, HASSANAL (b. 1946): Sultan of Brunei. The richest man in the world, for the seventh consecutive year. Assets estimated at \$ 37 billion.

BORG, BJORN (b. 1956): Of Sweden. World's top tennis player in the late 70s. In 1980, he won the men's singles at Wimbledon for the fifth consecutive year.

BORLAUG, NORMAN ERNEST (b. 1914): American wheat scientist responsible for the 'green revolution'. Nobel Peace Prize, 1970.

BOSE, JAGDISH CHANDRA (1858-1937): A doyen of Indian science; a pioneer in the field

of physical, electro-physiological and plant-physiological researches. Did original work in electricity.

BOSE, NETAJI SUBHAS CHANDRA (1897-1945): One of the leaders of the freedom struggle of India. Formed the Indian National Army in 1943 to fight the British with the help of Japan. Reportedly killed in an air crash.

BOSE, SATYENDRA NATH (1894-1974): Eminent Indian physicist. President, National Institute of Sciences of India (1949). Vice-chancellor, Viswabharati University, National Professor. An elementary particle, the boson, is named after him.

BOSWELL, JAMES (1740-95): Scottish author of the celebrated biography, *The Life of Samuel Johnson*.

BOTVINNIK, MIKHAIL (1911-1995): Russian electrical engineer who used his scientific training to hold the world chess title three times (1948-57, 58-60, 61-63). Tutored Garry Kasparov.

BRAILLE, LOUIS (1809-52): French educationist, who, as a (blind) teacher of the blind, devised the touch system of reading and writing for the blind.

BRANDT, WILLY (1913-1992): First Social Democratic chancellor of the Federal Republic of Germany, 1969-74. Improved relations with East Germany. Nobel Peace Prize, 1971.

BREZHNEV, LEONID (1906-82): Soviet President (1977); succeeded Khrushchev as First Secretary of the Communist Party, (1964-82). As Soviet leader, he promoted stability and consolidation in the system.

BRONTE, CHARLOTTE (1816-55): One of the three Bronte sisters, forceful novelist, author of *Jane Eyre*. Her sister Emily (1818-48) wrote *Wuthering Heights*; and another sister Anne (1820-49) wrote *Agnes Grey*.

BROWNING, ROBERT (1812-89): English poet of the Victorian Era, famous for his dramatic monologues. *Dramatis Personae, Men and Women, The Ring and The Book*, (his 'psychological epic'). His wife Elizabeth Barrett Browning (1806-61) was poet too, best known for her *Sonnets from the Portuguese*.

BRUCE, ROBERT (1274-1329): Scottish national leader against Edward I and Edward II of England. Crowned King in 1306; after years of struggle he defeated Edward II in 1314.

BRUTUS, MARCUS JUNIUS (85-42 B.C.): Roman senator famed as a conspirator against Julius Caesar; committed suicide.

BUBKA, SERGEI (b. 1964): World's best pole vaulter from Ukraine. In July '94, beat his own world record for a 17th time with a vault of 6.14m.

BUCK, PEARL S. (1892-1973): Celebrated American author. Nobel Prize (1938), Pulitzer Prize, (1932). *The Good Earth, Sons, A House*

Divided, An American Legend, Imperial Woman, My Several Worlds.

BUNYAN, JOHN (1628-88): A popular preacher and religious thinker who was originally a travelling tinker. Known for his *The Pilgrim's Progress*.

BURKE, EDMUND (1729-97): British parliamentarian and political philosopher; Prominent Whig orator who influenced many Federalists. Instigated impeachment of W.Hastings. *Conciliation with America, Reflections on the Revolution in France.*

BURNS, ROBERT (1759-96): Most famous of Scottish poets. *The Banks of Doon, Auld Lang Syne, Scots Wahae, Comin' through the rye.*

BUSH, GEORGE HERBERT WALKER (b. 1924): American politician. Vice-president of America, 1981-1988; President, 1988-92.

BUTLER, SAMUEL (1835-1902): English scholar, novelist and satirist. His autobiographical novel, *The Way of All Flesh*.

BYRD, RICHARD EVELYN (1888-1957): American admiral, renowned explorer and aviator. He was the first to fly over both North and South poles. Led 5 expeditions to the Antarctic.

BYRON, GEORGE GORDON (1788-1824): One of the greatest of English romantic poets who exercised great influence upon European literature and thought. At 20, he published *Hou-ers of Idleness. Childe Harold's Pilgrimage (1812).*

CABOT, JOHN (1425/50-c. 1500): Italian explorer. Discovered Newfoundland and Nova Scotia, believing them to be part of Asia, and may have reached the mainland of America before Columbus did. His son Sebastian Cabot (1476-1557) made voyages to the New World and became a renowned geographer and map maker.

CABRAL, PEDRO ALVAREZ (c. 1467-c. 1520): Portuguese navigator, discovered Brazil, which he named "Terra da Santa Cruz".

CAESAR, JULIUS (c. 101-44 B.C.): A great Roman general. Invaded Britain (55 B.C.), defeated Pompey, whom he pursued to Egypt, where he established Cleopatra as queen. At Rome he became dictator, and his reforms include the Julian calendar. Murdered.

CALVIN, JOHN (1509-64): French Protestant reformer and theologian.

CANTINFLAS (real name: Mario Moreno Reyes) (1911-93): International movie star and millionaire; who, born poor, once danced for pennies on street corners in Mexico City. "Around the World in 80 Days". Charlie Chaplin called him "the world's greatest comedian".

CAMUS, ALBERT (1913-60): French novelist, dramatist and existentialist philosopher; native of Algeria. *Le Mythe de Sisyphe, Caligula, The Price of Justice, and L'Etranger.* Nobel prize, 1957.

CARDIN, PIERRE (b.1922): Internationally known Master designer. The Haute couture czar, who is out to design for tomorrow and change the dress sense of civilisation, has licences in 125 countries around the world. Also associated with perfumes, jewellery, leather accessories and lingerie.

CARIAPPA, FIELD MARSHAL. K.M(1900-1993): First Indian C-in-C of Indian Army, 1943-53. High Commissioner to Australia and New Zealand, 1953-56.

CARLYLE, THOMAS (1795-1881): Scottish author. *Sartor Resartus, Heroes and Hero Worship, Cromwell's Letters and Speeches, The French Revolution.*

CARNEGIE, ANDREW (1835-1919): US industrialist (born in Scotland), founded U.S. Steel; financed more than 2800 libraries.

CARTER, JAMES EARL (b. 1924): American Democratic President 1977-'81. Treaty between Israel and Egypt, Panama Canal treaty, Salt II (not ratified), the release of American hostages in Iran were among his achievements.

CARTIER-BESSON, HENRI (b.1909) of Paris: One of this century's master photographers. Surrealist. Co-founder of *Magnum* photo agency. Wife Martina Frank also photographer.

CARTLAND, BARBARA (b. 1902): World's best selling author of USA. On an average, she writes a novel every fortnight. Her 600th book was published in 1994. 500 million copies of her books sold in 27 languages.

CARVER, GEORGE WASHINGTON (c.1864-1943): American agricultural chemist; discovered hundreds of uses for peanut, sweet potato, soybean.



Fidel Castro

CASTRO, FIDEL (b. 1927): Marxist President of Cuba and a revolutionary. In 1959 overthrew a police-state; initiated reforms in agriculture, industry, and education, and repulsed American economic dominance.

CATHERINE II (THE GREAT) (1729-96): Tsarina of Russia, a monarch of the Enlightenment. Territorial expansion marked her reign.

CAUCHY, AUGUSTIN LOUIS, BARON (1789-1857): French mathematician, developed theory of functions of complex variable.

CAVE, EDWARD (1691-1754): English publisher, who founded *The Gentleman's Magazine*, first modern magazine (1731-1914).

CAXTON, WILLIAM (1422-91): the first English printer and publisher.

CELCIUS, ANDERS (1701-44): Swedish in-

ventor, astronomer. Devised (1742) Celsius or centigrade temperature scale.

CERVANTES, SAAVEDRA MIGUEL de (1547-1616): the great Spanish novelist and dramatist. *Don Quixote*.

CEZANNE, PAUL (1839-1906): French post-impressionist painter who influenced the development of abstract art in the 20th century.

CHAMBERLAIN, NEVILLE (1869-1940): English statesman, Prime Minister 1937-40, known for his policy of appeasement.

CHANAKYA (also known as **KAUTILYA**) (4th century B.C.): Author of 'Artha Shastra', an authentic book on statecraft, who was Prime Minister to Chandragupta Maurya, founder of Maurya dynasty (India) who ruled from 321-298 B.C.

CHAND, DHYAN (1905-1979): Hockey wizard. Born Dhyani Singh, Allahabad. Served army to be honoured as Major in 1943. Olympic gold in Amsterdam 1928, Los Angeles 1932, Berlin 1936. Scored largest number of goals for India. Padmabhushan, 1956. Son Ashok Kumar also Olympian.

CHANDLER, RAYMOND THORNTON (1888-1959): American detective story writer. Created cynical private detective Philip Marlowe.

CHANDRA SEKHAR (b. 1927): Indian politician, parliamentarian, socialist. President, Socialist Janata Party from 1977. Prime Minister, Nov. '90 to Mar. '91.

CHANDRASEKHAR, SUBRAHMANYAN (1910-1995): Born at Lahore, an American citizen; nephew of Sir C. V. Raman (the first Indian to receive a Nobel prize in Physics in 1930). Won the Nobel prize for physics in 1983 for his theoretical studies of the physical processes of importance to the structure and evolution of stars. "Chandrasekhar's Limit". *"The Mathematical Theory of Black Holes"* (1983).

CHANDRASWAMI (original name: Nemi Chand Jain) (b. 1949): Controversial, wheeling-dealing, jet-setting godman of India.

CHANG, MICHAEL (b. 1972): The youngest ever (17 years 3½ months) to win the men's crown in the Grand Slam French Open tennis championship (1989).

CHAPLIN, CHARLES SPENCER (CHARLIE) (1889-1977): Film star comedian, first international screen star, with more than 50 years' achievement. B. in London, he went to the United States in 1916. *Shoulder Arms, The Kid, The Gold Rush, City Lights, Limelight, The Tramp*.

CHARLEMAGNE (1724-1814): (Charles the Great). One of the great rulers of history, king of the Franks and Lombards, he founded a new Roman Empire comprising Gaul, Italy, and large parts of Spain and Germany; crowned Emperor; laid the basis for the Holy Roman Empire.

CHARLES (PHILIP ARUTHUR GEORGE) (b. 1948): Prince of Wales, eldest son of Queen Elizabeth II; married Lady Diana Spencer, 1981.

CHARLES I (1600-49): King of England, Scotland and Ireland, 1625. Attempted to rule without parliament; Beheaded.

CHATTERJI, BANKIM CHANDRA (1838-1894): poet and novelist of India (Bengal), who was a great patriot. Author of *Vande Mataram, Anand Math*.

CHATTERJEE, SOUMITRA (b. 1934): A consummate screen and theatre actor of West Bengal.

CHATTOPADHYAY, KAMALADEVI (1903-1988): The high priestess of Indian culture, arts, theatre and literature. Her fields of activity ranged from culture to politics and social work. Magsaysay award for community leadership, 1966.

CHAUCEER, GEOFFREY (1340-1400): English poet. *The Canterbury Tales* gives a graphic description of contemporary life.

CHAUDHURI, NIRAD C. (b. 1897): Indian writer, and social critic, who writes in English and lives in England. *Autobiography of an Unknown Indian, A Passage to England*.

CHEKHOV, ANTON (1860-1904): Russian dramatist and short story writer. *The Cherry Orchard, Uncle Vanya, Three Sisters*.

CHELLIAH, Dr. RAJA J. (b. 1922): Eminent Indian economist who headed Tax Reforms Committee; advisor in Ministry of Finance; Chairman of National Institute of Public Finance and Policy.

CHERNENKO, KONSTANTIAN USTINOVICH (1911-85): Soviet politician. Succeeded Andropov as General Secretary of the Communist Party, 1984.

CHERENKOV, PAVEL ALEKSEYICH (b. 1904): Soviet physicist. Discovered Cherenkov effect when high energy charged particles move through medium at velocity exceeding that of light in the medium. Shared Nobel Prize (1958).

CHESHIRE, LEONARD (1918-1992): The World War II hero who set up a global network of houses for the disabled.

CHESTERFIELD, (PHILIP DORMER) STANHOPE (1694-1773): English statesman and diplomat whose letters to his natural son Philip Stanhope, are full of wit and worldly wisdom and (after publication became) a handbook of good manners.

CHESTERTON, GILBERT KEITH (1874-1936): English essayist, novelist and poet. *The Napoleon of Notting Hill, The Innocence of Father Brown, The Everlasting Man*.

CHEVALIER, MAURICE (1888-1972): French film actor, singer who became international filmstar in 1930s. *Love Me Tonight, Gig*

CHIANG KAI-SHEK (1887-1975): Chinese general. After Sun Yat-sen's death (1925), as commander of the Kuomintang army, he attempted to unite China; in 1949 retired to Formosa (Taiwan) after the victory of the Communists.

CHICHESTER, SIR FRANCIS (1901-72): English yachman, aviator, best known for sailing around world single handed in *Gipsy Moth IV*, (1966-67).

CHINMOY, SRI : U.S.-based Indian religious leader. Has composed 13,000 devotional songs (8000 in his native Bengali, 5000 in English) based on Vedas, Upanishads, the Bible etc.

CHOPIN, FREDERIC FRANCOIS (1810-49): Polish pianist and composer; "the poet of the piano".

CHOU EN-LAI (1898-1976): Chinese revolutionary statesman, administrator and diplomat, organised revolt in Shanghai 1927, later formed close partnership with Mao Tse-tung, took part in the 'long march' 1934-5, becoming Prime Minister of the new China in 1949.

CHRISTIE, AGATHA (1890-1976): World-famous English writer of detective fiction. Her two detectives are Miss Marple and Hercule Poirot. Her play 'Mousetrap' has run in London for four decades. In sales, Agatha's books come second only to the Bible. *The Murder of Roger Ackroyd, Murder on the Orient Express, Death on the Nile, Ten Little Niggers.*

CHURCHILL, SIR WINSTON (1874-1965): British statesman, soldier and author. Prime Minister and Minister of Defence 1940-45; Prime Minister, 1951-55. His main achievement was as leader of the British people in World War II. Nobel Prize for Literature (1953). *The Gathering Storm, The Second World War, The History of English Speaking Peoples.*

CICERO, MARCUS TULLIUS (106-43 B.C.): Roman orator, statesman. Philosophical and rhetorical works are masterpieces of Latin prose. Sided with Pompey in civil war; executed by Antony.

CLAY, CASSIUS (b. 1942): American boxer, former world heavy weight champion. Known by his Muslim name Muhammed Ali.

CLEOPATRA (69-30 B.C.): Egyptian queen. Became joint ruler, with brother Ptolemy XII, at age of 17; was wife of Julius Caesar and later mistress of Mark Antony. Committed suicide.

CLINTON, WILLIAM JEFFERSON (b. 1946): Democrat leader who beat President George Bush to become 42nd U.S. President (Jan. '93).

COCKERELL, CHRISTOPHER (b. 1910): English inventor of the hovercraft, which works on the air-cushioning principle.

COLERIDGE, SAMUEL TAYLOR (1772-1834): English poet, critic and philosopher. *The Ancient Mariner, Christabel, and Kubla Khan.*

COLLINS, LT.COL. EILEEN (b.1956): The first female to take over the controls of a NASA spaceship. Became the US Air Force's second woman test pilot in 1990. Second in command in Space Shuttle 'Discovery'.

COLUMBUS, CHRISTOPHER (c.1451-1506): Italian explorer known as the discoverer of the Americas. In 1492 discovered the Bahamas, Cuba, and other West Indian Islands. In 1498 he landed on the lowlands of S. America.

COMTE, AUGUSTE (1798-1857): French philosopher. Disciple of Saint Simon. Founder of Positivism.

CONFUCIUS or K'UNG FU-ISE (c. 551-478 B.C.): Chinese philosopher, founder of the system of cosmology, politics, and ethics known as Confucianism.

CONNERY, SEAN (b.1930): Irish actor who became one of the Hollywood most sought-after. Won acclaim as screen's secret agent *James Bond*.

COOK, CAPTAIN JAMES (1728-79): English navigator. He made many voyages round the world. Discovered the Sandwich (Hawaiian) Islands.

COOK, THOMAS (b.1908-1982): British. Baptist priest turned tour operator, established *Thomas Cook*. Father of modern tourism.

COPERNICUS, NICOLAS (1478-1543): Polish astronomer; considered founder of modern astronomy. Put forward the novel theory that the planets, including the earth, revolve round the sun.

CORREA, CHARLES (b.1930): India's eminent architect, educated at Michigan and MIT. Cidade de Goa Hotel (1982), LIC Building, New Delhi (1988) etc. Awarded RIBA Royal Gold Medal (1984), the Aalto Medal and the UIA Gold Medal.

CROMWELL, OLIVER (1599-1658): English soldier, statesman and leader of the Puritan revolution. He provoked English aversion to military rule.

CUELLAR, JAVIER PEREZ DE (b. 1920): Peruvian diplomat. UN Secretary General, 1982-1991.

CULKIN, MACAULY (b.1981): Child star of *Home Alone* fame.

CURIE, MARIE SKLODOWSKA (1867-1934): First great woman scientist, b. Poland. She came to Paris and married Pierre Curie (1859-1906), Professor of physics. Jointly discovered radium for which they shared the Nobel Prize for physics (1903). Curie received the Nobel Prize again in 1911 for Chemistry.

DA GAMA, VASCO (1460-1524): Portuguese navigator, discoverer of the sea route from western Europe to India.

DAIMLER, GOTTLIEB (1834-1900): German engineer, inventor. He improved internal com-

bustion engine, furthering car industry.

DALAI LAMA (b. 1935): (Tenzing Gyatso) Spiritual leader of Tibet, fled to India, after Tibetan uprising, and established Govt-in-exile at Dharamsala, in Himachal Pradesh, India (1959). Nobel laureate (1989).



Dalai Lama

DAM, HENRIK (1895-1976): Danish biochemist who discovered vitamin K. Nobel Prize shared (1943).

DAMIEN, FATHER JOSEPH (1840-89): Originally Joseph de Veuster. Belgian Catholic missionary. Worked until death from leprosy in leper colony on Molokai, Hawaii.

DANTE ALIGHIERI (1265-1321): Italian poet. *The Divine Comedy*.

DARIUS I (548-486 B.C.): Persian king and founder of Persepolis. He extended the borders of the Persian empire beyond the Indus, and reorganised it into satrapies.

DARWIN, CHARLES ROBERT (1809-82): English naturalist, one of the pioneers of experimental biology, who argued that the evolution of present-day morphology had been built up by the gradual and opportunistic mechanism of natural selection. *The Origin of Species*, *The Descent of Man*.

DAVIS, BETTE (1908-1989): Originally Ruth Elizabeth Davis. American actress best known for her portrayal of intense, strong-willed women. *All About Eve*, *Whatever Happened to Baby Jane?*

DAVY, SIR HUMPHRY (1778-1829): British chemist and inventor of the Davy miner's safety lamp.

DAYANAND SARASWATI (1824-1883): Hindu social reformer who founded the Arya Samaj school, and fought for removal of evils like opposition to widow marriage, untouchability, etc.

DEFOE, DANIEL (1660-1731): English political writer; also author of *Robinson Crusoe*.

DE MILLE, CECIL (1881-1959): American film producer director. Grand old man of Hollywood. *The Plainsman*, *The Ten Commandments*.

DEMOSTHENES (384-322 B.C.): Greek orator who roused the Athenians to resist the growing power of Philip of Macedon.

DENG XIAOPING (b. 1904): Chinese politician rehabilitated at Eleventh Party Congress (1977), one of the 3 vice chairmen of the Communist Party, 1980-82. The country's senior leader.

DE QUINCEY, THOMAS (1785-1859): English essayist and critic. *Confessions of an English Opium-eater*.

DESAI, MORARJI RAMCHODJI (1896-1995): Senior most Indian politician who was Prime Minister from Nov. '77 to July '79. Freedom fighter and staunch Gandhian. Chief Minister of Bombay (1952-'56). Union Minister, 1956-63. Deputy P.M. & Finance Minister, 1967-69. Bharat Ratna, 1991.

DESCARTES, RENE (1596-1650): French mathematician, pioneer of modern philosophy.

DESHPANDE, PURUSHOTTAM LAKSHMAN (b. 1919): Veteran Marathi writer and performer known as Pu La.

DE SICA, VITTORIO (1901-74): Italian film director and actor. *Shoeshine*, *Bicycle Thieves*, *Umberto D*.

DEWEY, MELVIL (1851-1931): American library pioneer, originator of Dewey decimal system, a scheme of book classification using numbers 000 to 999.

DICKENS, CHARLES (1812-70): Popular English novelist of the 19th cent. *David Copperfield*, *A Tale of Two Cities*, *Pickwick Papers*, *Oliver Twist*.

DIESEL, RUDOLF (1858-1913): German engineer, inventor of an internal combustion engine which he patented in 1893.

DIETRICH, MARLENE (1901-1993): Actress and singer, native of Berlin whose career began in Pre-Hitler Germany and flourished in the USA, where she moved in 1930 becoming a US citizen. *The Blue Angel*.

DIOR, CHRISTIAN (1905-57): French fashion designer. Established fashion houses in Paris (1946) and New York (1948). Major influence in world fashion.

DISNEY, WALTER ELIAS ('Walt') (1901-66): American film cartoonist, creator of Mickey Mouse, Donald Duck and Silly Symphonies.

DISRAELI, BENJAMIN (1804-81): British statesman and novelist who helped to form modern Conservatism in England. Prime Minister, 1868 and 1874-80.

DOSHI, BALKRISHNA VITHALDAS (b. 1927): Leading Indian architect. Senior designer for Le Corbusier in Paris for projects in Ahmedabad and Chandigarh. Founded School of Architecture and Planning in Ahmedabad.

DOSTOEVSKY, FEODOR MIKHAILOVICH (1821-81): Russian novelist. As a result of his revolutionary activity he was sent to hard labour in Siberia. *Crime and Punishment*, *The Brothers Karamazov*, *The Idiot*, *The Possessed*.

DOYLE, Sir ARTHUR CONAN (1859-1930): British writer of detective stories. Creator of the detective Sherlock Holmes and his friend Dr. Watson. *The Lost World*, *The Hound of the Baskervilles*.

DRAKE, Sir FRANCIS (c. 1540-96): English seaman; in 1577-80 he sailed round the world in the "Golden Hind".

DRUCKER, PETER F. (b. 1909): Management expert and author of international fame. Professor, Claremont Graduate School, California. *Managing for Results, The Changing World of the Executive, The Age of Discontinuity*, etc.

DUBCEK, ALEXANDER (1922-1992): Reformist leader of Czechoslovakia whose introduction of 'socialism with a human face' during the Prague Spring 1968 was crushed. Re-emerged in 1989 to join Vaclav Havel in proclaiming a democratic Czechoslovakia. President of the federal parliament.

DULLES, JOHN FOSTER (1888-1959): US Secretary of State in the Republican administration, 1953-9, opposed to negotiation with Russia and to US recognition of China.

DUMAS, ALEXANDRE (1802-70): French romantic novelist. *The Three Musketeers, The Count of Monte Cristo, The Black Tulip*.

DUNANT, JEAN HENRI (1828-1910): Swiss philanthropist. Horrified by the experience of tending wounded at battle of Solferino, promoted establishment of International Red Cross (1863). Shared first Nobel Prize (1901).

DUNLOP, JOHN BOYD (1840-1921): Scottish veterinary surgeon. Patented (1888) Dunlop version of pneumatic tyre, producing it commercially in Belfast.

DUPLEIX, JOSEPH FRANCOIS (1697-1763): French governor in India.

DU PONT, ELEUTHÈRE IRENEE (1772-1834): American chemicals manufacturer, b. France. Founded powder mill, expanding Du Pont firm into one of the largest explosives makers.

DURANT, WILL (1885-1981): American historian. *The Story of Civilization, The Story of Philosophy*.

DUVALIER, FRANCOIS ('Papa Doc') (1907-71): Dictator of Haiti (1957-71). Used personal police force (Tonton Macoutes) to enforce brutal repression of opponents. Succeeded by son Jean-Claude Duvalier.

DWIGHT F. DAVIS (1879-1945): American civic leader and government official who donated the trophy of International Lawn Tennis Championship for men. (*Davis Cup*).

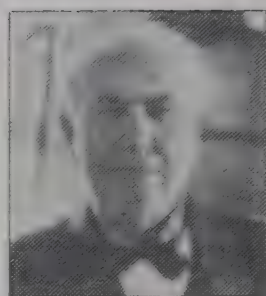
EASTMAN, GEORGE (1854-1932): American inventor; manufacturer of photographic equipment.

ECKERT, JOHN PRESPEER (1919-1995): Co-inventor of the computer. His pioneering work with John W. Mauchly during World War II to determine artillery shell trajectories led to the development of world's first electronic digital computer, the precursor to today's PC.

EDBERG, STEFAN (b. 1967): The Swedish tennis player who became Wimbledon Champion for the second time in 1990 when he

dethroned Boris Becker. US open men's singles, 1991.

EDISON, THOMAS ALVA (1847-1931): American inventor of the transmitter and receiver for the telegraph system, the phonograph, the incandescent lamp, and many other devices.



Edison

EHRENBURG, LIYA GRIGORYEVICH (1891-1967): Russian writer who covered the Spanish Civil War for Soviet papers (1936-7). Novel *The Thaw* gave name to post-Stalin relaxation.

EHRlich, PAUL (1854-1915): German bacteriologist. Discovered means of staining and identifying tuberculosis bacilli, and drug arsphenamine, the first effective treatment against syphilis. Shared Nobel Prize (1908) for theory of antibodies' role in immunity.

EIFEL, ALEXANDRE GUSTAVE (1832-1923): French engineer of fame. The Eiffel Tower and the Panama Canal Locks are his great works. One of the first to employ compressed air caissons in bridge building.

EINSTEIN, ALBERT (1879-1955): The foremost scientist of 20th century. Mathematical physicist whose theory of relativity superseded Newton's theory of gravitation. Nobel prize (1921) for his discovery of the law of the photoelectric effect.

EISENHOWER, GEN. DWIGHT (1890-1969): American general and statesman. He was C-in-C, Allied Forces, N. Africa 1942-3, and in the European theatre of operations, 1943-5; Republican President, 1953-61.

ELIOT, GEORGE (1819-80): pen-name of English woman novelist Mary Anne (later Marion) Evans. *Adam Bede, The Mill on the Floss, Silas Marner*.

ELIOT, THOMAS STEARNS (1888-1965): poet and critic. *The Waste Land, The Cocktail Party, Ash Wednesday, Four Quartets, Murder in the Cathedral, The Family Reunion*. Nobel prize, 1948.

ELIZABETH II (b. 1926): Queen of Gt. Britain and N. Ireland; ascended the throne, 1952.

ELLINGTON, EDWARD KENNEDY ('DUKE') (1899-1974): American pianist, composer. His famous songs include 'Mood Indigo', 'Solitude'.

ELLIS, HAVELOCK (1859-1939): English psychologist and writer. *Studies in the Psychology of Sex* (7 vols; 1898-1928), one of the first scientific examinations of sexuality.

ELLSWORTH, LINCOLN (1880-1951): American engineer, explorer who was the first to fly over Antarctica (1935), claiming vast

territory for USA. In 1926 flew over North Pole, with Amundsen (from Spitsbergen to Alaska).

ENGELS, FRIEDRICH (1820-95): German socialist, lifelong friend of Karl Marx, with whom he collaborated in writing the *Communist Manifesto*.

ERASMUS, DESIDERIUS (1466-1536): The greatest humanist and scholar of Dutch Renaissance. *Praise of Folly*.

EURIPIDES (480-406 B.C.): The greatest of the Greek dramatists, who wrote about 80 plays. *Trojan Woman, Alcestris, Medea, Iphigenia, Orestes*.

EVERT, CHRIS (b. 1954): of USA. One of the all-time greats in tennis. Won 20 championships from 1974 to 1986, and 157 tournament titles in all. Inducted into the tennis Hall of Fame, in 1995.

FAHRENHEIT, GABRIEL DANIEL (1686-1736): German physicist who introduced the mercury thermometer and fixed thermometric standards.

FALLOPIO, GABRIELE (1523-62): Italian anatomist, discovered Fallopian tubes, leading from ovaries to the uterus, in which fertilization takes place.

FARADAY, MICHAEL (1791-1867): English physicist; founder of the science of electromagnetism.

FARAH, NURUDDIN (b. 1945): Somali novelist, and a major writer of Africa. Has mastered 5 major languages. Had university education in India. *From a Crooked Rib, A Naked Needle, Sardines*.

FAULKNER, WILLIAM (1897-1962): American novelist, whose series of novels (*The Sound and the Fury*, etc.) depict the American South. Nobel prize, 1949.

FAWKES, GUY (1570-1606): English conspirator. Served with Spanish armies in Netherlands. Involved in Gunpowder plot (Nov. 5, 1605) to blow up Houses of Parl. Plot exposed. Executed.

FAY, MICHAEL (b. 1975): An American teenager whose caning for vandalism in Singapore sparked a protest by the U.S. government.

FELLINI, FEDERICO (1920-1993): Great Italian film maker. Five time Academy Award winner: for life time achievement in 1993. *La Strada* (1954), *La Dolce Vita* (1959), *8 1/2* (1963), *Juliet of the Spirits* (1965), *Amaicord* (1973).

FISCHER, BOBBY (b. 1943): World Chess Champion, 1972-75. Won the title from Boris Spassky in 1972.

FITZ GERALD, EDWARD (1809-83): English poet and translator. Translated *The Rubaiyat of Omar Khayyam* (1859).

FLEMING, Sir ALEXANDER (1881-1955): Scottish bacteriologist and discoverer of peni-

cillin (1928). Nobel prize, jointly with Florey and Chain, 1945.

FORD, GERALD R. (b. 1913): American Republican President, 1974-7.

FORD, HENRY (1863-1947): founder of Ford Motor Company (1903) who became the world's second richest man.

FORSTER, EDWARD MORGAN (1879-1970): Novelist, shortstory writer and essayist. Author of *'A Passage to India'*. The most famous foreign writer about India.

FORSYTH, FREDERICK (b. 1939): British journalist and author of best-sellers like *Day of the Jackal*, *The Odessa File* and *The Dogs of War*. Over 30 million copies of his books sold in two dozen languages.

FRANCIS OF ASSISI, St. (1181/2-1226): Founder of the Franciscan Order.

FRANK, ANNE (1929-c. 1945): Dutch author of "The Diary of a Young Girl" recording experiences while hiding from Nazis in Amsterdam warehouse. Died in Belsen concentration camp.

FRANKLIN, BENJAMIN (1706-90): American statesman, and scientist. Invented the lightning conductor.

FREDERICK II (the Great) (1712-86): King of Prussia for 46 years. Able ruler and great scholar.

FREUD, SIGMUND (1856-1939): Austrian psychiatrist and founder of psychoanalysis.

FRITZ BENNEWITZ (1926-95): German theatre director who worked in India.

FROST, ROBERT (1874-1963): American poet. *Stopping by Woods on a Snowy Evening, Birches, The Death of the Hired Man, After Apple-Picking*.

FRY, ELIZABETH (1780-1845): English prison reformer, philanthropist.

GAGARIN, YURI (1934-68): Soviet cosmonaut, the first man to be launched into space and brought safely back (12 April 1961); killed in an airplane accident.

GALBRAITH, JOHN KENNETH (b. 1908): American economist, diplomat and writer. Ambassador to India, 1961-3. *The Affluent Society*.

GALILEO (1564-1642): Italian scientist and astronomer who laid the foundations of modern science. He made a number of fundamental discoveries. e.g., in regard to the hydrostatic balance, thermometer, and telescope. The first man to see the satellites of Jupiter.

GALLUP, GEORGE HORRACE (1901-1984): Renowned American statistician who studied public opinion through questions put to a representative group- 'Gallup poll'.

GALSWORTHY, JOHN (1867-1933): English novelist and dramatist. *The Forsyte Saga*. Nobel prize, 1932.

GANDHI, INDIRA (1917-84): Daughter of Nehru, India's first woman prime minister (1966-77, 1980-84). She suffered a defeat in the 1977 election but was spectacularly successful in 1980. Assassinated. Succeeded by her son, Rajiv Gandhi. Bharat Ratna, 1971.

GANDHI, MOHANDAS KARAMCHAND (Mahatma) (1869-1948): Father of the Indian nation, and one of the greatest personalities of the 20th cent. From 1893 to 1914 he lived in South Africa opposing discrimination against Indians. In 1915, returned to India where he dominated the Congress party. India won independence under his guidance. He lived an austere life, devoted to truth, non-violence, chastity, vegetarianism and worked for Hindu-Muslim unity and the abolition of untouchability. Assassinated on his way to a prayer meeting. *The Story of My Experiments with Truth*.

GANDHI, RAJIV (1944-1991): Grandson of Jawaharlal Nehru; a commercial pilot turned politician; Indian Prime Minister from 1984 to 1989. Assassinated. Bharat Ratna (posthumous), 1991.

GARBO, GRETA (1905-1990): Swedish film actress of poetical quality. Her films included *Queen Christina* and *Ninotchka*.

GARIBALDI, GIUSEPPE (1807-82): Italian general and patriot, who, with Mazzini and Cavour, created a united Italy.

GATES, BILL (b. 1956): World's richest private individual, with a \$12.9b. fortune (*Forbes* magazine list). Chairman of Microsoft Corporation.

GAUGIN, (EUGENE HENRI) PAUL (1848-1903): French painter. Leading artist of synthetist. Rejecting Western civilization, he sought simplicity of primitive life in Tahiti. Works include 'The Yellow Christ'

GAULLE, CHARLES DE (1890-1970): French general and statesman; first president of the Fifth Republic, 1959-69.

GAUTAMA, SIDDHARTHA (BUDDHA, THE ENLIGHTENED) (c. 563-c. 483 B.C.): Founder of Buddhism. The Indian prince who renounced luxury and became an ascetic. Began a movement which could be universally shared, in which kindness was basic. After his death, his teaching spread through Asia.

GAVASKAR, SUNIL (b. 1949): Cricketer of India. World record for scoring a century in each innings of a test on three occasions; scored 1000 runs in Tests in a calendar year thrice; scored 34 centuries in Tests (world record); scored highest number of runs in 125 Test matches (more than 10,000), later bettered by Border.

GENGHIS KHAN (1162-1227): Mongol conqueror who overran the greater part of Asia and founded the Mongol world empire.

GEORGE, BOY (real name: George O'Dowd) (b. 1962): The gender bender pop idol of the 1980s.

GEORGE, St.: Patron saint of England, adopted by Edward III

GETTY, JEAN PAUL (1892-1976): American. Founded oil empire.

GHALIB, MIRZA ASADULLAH KHAN (1796-1868): A renowned Urdu poet. *Diwan-e-Ghalib*.

GHOSH, TUSHAR KANTI (1899-1994): Prominent Indian journalist, one of world's longest serving editors. Founder 'Jugantar' & 'Northern India Patrika'. Editor, *Amrita Bazar Patrika* from 1928 till death.

GIBBON, EDWARD (1737-94): English historian who wrote *Decline and Fall of the Roman Empire*.

GIDE, ANDRE (1869-1951): French writer of many short novels. *Strait is the Gate*, *The Counterfeiters*.

GIELGUD, SIR JOHN (b. 1904): One of the century's great classical actors and the finest speaker of Shakespearean verse in the history of theatre. Working at 90, playing Scarlett O'Hara's miserly grandfather in the TV serial, a sequel to *Gone With The Wind*.

GIRI, VARAHAGIRI VENKATA (1894-1980): Third Vice-President and fourth President of India. Veteran trade unionist. Bharat Ratna, 1975.

GISH, LILLIAN (1896-1993): American silent film actress whose career spanned eight decades. Sister Dorothy Gish (1898-1968), also actress.

GLADSTONE, WILLIAM EWART (1809-98): British Liberal statesman. Prime Minister four times between 1868 and 1894.

GOEBBELS, PAUL JOSEPH (1897-1945): German political leader, Nazi propaganda minister; orator. Committed suicide during fall of Berlin.

GOETHE, JOHANN WOLFGANG VON (1749-1832): German poet and thinker. *Faust*, *Wilhelm Meister*.

GOKHALE, GOPAL KRISHNA (1866-1915): Indian statesman whom Gandhi regarded as his political guru. Founded Servants of India Society (1905).

GOLDBERG, WHOOPIE (b. 1956): Actress-comedienne. Oscar-nominated performance in the 1985 film *The Colour Purple*.

GOLDING, SIR WILLIAM (1911-1993): Nobel prize-winning author of 'The Lord of the Flies'. Educated at Oxford, he took up teaching, acting, directing and writing.

GOLDSMITH, OLIVER (1728-74): Irish poet, dramatist and novelist. *The Vicar of Wakefield*, *She Stoops to Conquer*.

GOVINDARAO, PHULE JOTIRAO (1827-1890): Great social reformer of India who worked for the downtrodden, women's education, social justice and against child marriage.

GOODYEAR, CHARLES (1800-60): American inventor who discovered the art of vulcanising rubber.

GORBACHEV, MIKHAIL (b. 1931): Soviet leader who was largely responsible for the political transformation in Eastern Europe in 1989. General Secretary of the Communist Party, 1985. His accession marked the end of the 'old-guard' leadership. His policy of 'glasnost' and 'perestroika' was welcomed everywhere but was fraught with danger. The Soviet Union broke up and Gorbachev resigned (1991). Nobel Prize for peace, 1990.

GORKY, MAXIM (1868-1936): Russian writer. *Mother*.

GRACE, WILLIAM GILBERT (1848-1915): Great cricketer of his times. Captained England 3 times. Scored over 54,000 runs including 26 centuries, and took over 2800 wickets.

GRAF, STEFFI (b. 1971): of Germany is the third woman in tennis history to win all four major world tournaments- the Australian Open, French Open, Wimbledon and the US Open in a single calendar year (1988). She also won the Olympic gold medal that year. She won successive Grand Slams— something not achieved by any (male or female) player. In Sept. 95, won her 4th US Open-her 18th Grand Slam title.



Billy Graham

GRAHAM, BILLY (b. 1918): Most celebrated U.S. evangelist of the 1960's and 1970's who has preached the gospel in person to more than 110 m. people. Most admired man (1992 and 1993) in *Good Housekeeping's* annual list.

GRAHAM, MARTHA (b. 1894): American dancer, teacher and choreographer of more than 140 works. The major figure in modern dance who created new forms and her own highly developed technique.

GREENE, GRAHAM (1904-1991): English novelist and journalist. *The Power and the Glory, The Heart of the Matter, The End of the Affair, The Quiet American, Our Man in Havana*.

GREGORY XIII (1502-85): Pope (1572-85) who introduced the Gregorian calendar.

GROMYKO, ANDREI (1909-1989): Russian diplomat and statesman. President, USSR, in 1985; Foreign Minister, 1957-85.

GUEVARA, ERNESTO "CHE" (1928-67): Latin American revolutionary who took part in the Cuban guerrilla war and became a minister in Cuba 1959-65. Killed while leading a band of guerrillas against Bolivian troops.

GUNDERT, Dr. HERMAN (1814-1893): A linguist of Germany who came and lived in India, where he learned 18 local languages and compiled a Malayalam dictionary and authored

several books including textbooks and grammar.

GUPTA, MAITHILI SARAN (1886-1964): A national poet of India, and one of the makers of modern Hindi literature. *Bharat Bharati, Vishnupriya, Saaket*.

GUTENBERG, JOHANN (1400-68): German inventor who invented printing with movable types cast in moulds. The earliest book printed by him was the Mazarin Bible (Gutenberg Bible)

GUY THOMAS (1644-1724): English philanthropist. A printer, he made money by speculation, and founded a hospital.

HAFFKINE, VLADIMIR (1860-1930): First Director of Plague Research Laboratory, Bombay (1899), which in 1925 was renamed The Haffkine Institute.

HAHN, OTTO (1879-1968): German chemist, chief discoverer of nuclear fission, on which the atom bomb is based. Nobel prize, 1944.

HAILE SELASSIE I (1891-1975): Emperor of Ethiopia, 1930-74. During the Italian occupation (1936-41) he was in England. Deposed in 1974.

HALDANE, J.B.S. (1892-1964): British biochemist and geneticist, noted for his work on enzymes, genetics and heredity and for explaining science to the layman. He emigrated to India in 1957.

HAMMARSKJOLD, DAG (1905-61): Swedish diplomat, world statesman. Secretary-General of the United Nations, 1953-61. Killed in an air crash. Posthumous Nobel peace prize, 1961.

HANNIBAL (247-182 B.C.): Carthaginian general who fought two wars against Rome. Regarded by many as the greatest general of antiquity.

HANUMAN, GURU (b. 1899): Famed Indian wrestler, winner of Dronacharya award.

HARDY, THOMAS (1840-1928): English novelist and poet, sometimes called the 'last of the Victorians'. *Far from the Madding Crowd, Return of the Native, The Mayor of Casterbridge, Tess of the D'Urbervilles, Under the Greenwood Tree*.

HARRIS, PAUL (1868-1947): American who founded Rotary International in 1905.

HARVEY, WILLIAM (1578-1657): English physician who discovered the mechanics of the circulation of blood, 1616.

HAWKING, STEPHEN (b. 1942): Well-known astrophysicist, who is considered the most prolific scientist of this generation. The new occupant of Issac Newton's chair as Lucasian Professor at Cambridge University. Victim of a degenerative nerve disease, he can communicate only through a computer, attached to his motorized wheelchair. *A Brief History of Time* (5.5 million copies sold), *Black Holes and Baby Universes*.

HEARST, WILLIAM RANDOLPH (1863-1951): A dominant figure in American journalism; built vast publishing empire.

HEATH, EDWARD (b. 1916): British statesman, leader of the Conservative Party, 1965-75; Prime Minister 1970-4.

HEGEL, GEORG WILHELM FRIEDRICH (1770-1831): German idealist philosopher whose name is associated with the dialectic method of reasoning with its sequence of thesis-antithesis-synthesis. *The Science of Logic, Philosophy of Right*.

HEMINGWAY, ERNEST (1898-1961): Sminent American novelist of new technique and wide influence. *The Sun Also Rises, A Farewell to Arms, Death in the Afternoon, For Whom the Bell Tolls, The Old Man and the Sea*. He committed suicide. Nobel prize, 1954.

HENRY, O. (real name WILLIAM SYDNEY PORTER) (1862-1910): Master story-teller, Accused of stealing money from the bank he worked in, he spent 3 years in prison, where he wrote short stories under pen names and later became a fulltime writer. *"The Gift of the Magi"*.

HERGE (GEORGES REMI) (1907-83): World famous author of 'Tintin cartoon' series.

HERODOTUS (c. 485-425 B.C.): The first of the great Greek historians, called by Cicero, 'the father of history'.

HEYERDAHL, THOR (b.1914): Norwegian scientist and adventurer, best known for his voyage aboard the Kon-Tiki raft; believes that ancient civilizations were spread by mariners on primitive craft; and that Columbus reached America in 1477, not 1492.

HIDAYATULLAH, MOHAMMED (1905-1992): Jurist who was Vice-President of India, 1979-84, before which he was the country's Chief Justice.

HILL, Sir ROWLAND (1795-1879): Originator of the penny postal system.

HILLARY, EDMUND (b. 1919): New Zealand explorer, who, with Tensing Norgay, was the first to climb Mount Everest in 1953.

HIPPARCHUS (2nd cent. BC): Greek astronomer. A founder of systematic astronomy. Made catalogue of stars and discovered precession of equinoxes; first to use trigonometry.

HIPPOCRATES OF COS (c. 430 B.C.): Greek physician, called the Father of Medicine, who is believed to have authored medical writings and established medical schools.

HIROHITO (1901-1989): 124th Emperor of

Japan, acceded to the throne in 1926. In 1946 he renounced his legendary divinity.

HITCHCOCK, ALFRED (1899-1980): British-American film director, 'the master of suspense'. Made great films like *Vertigo, Psycho, The Birds, North by Northwest*.

HITLER, ADOLF (1889-1945): German dictator. At the end of the war under his leadership the National Socialist (Nazi) Party climbed to power. He became Reich chancellor in 1933 and Fuhrer in 1934; All his opponents were persecuted and murdered. Committed suicide.

HOBBS, THOMAS (1588-1679): English philosopher who wrote *Leviathan*, a treatise on governmental theory.

HO CHI-MINH (1890-1969): Vietnamese revolutionary leader and the first President of North Vietnam.

HOMER (c. 700 B.C.): Epic poet. He is supposed to have been a Greek and the author of *The Iliad* and *The Odyssey*.

HONECKER, ERICH (1913-1994): The stolid Marxist who ruled East Germany for 18 yrs. until people's uprising swept him aside in Oct. 89.

HOPE, BOB (orig. Leslie Townes Hope) (b. 1903): Great American entertainer. Has 54 honorary doctorates. Says retirement is not in his plans.

HUGHES, HOWARD (1905-76): US industrialist, financier, movie maker.

HUGO, VICTOR (1802-85): French poet, dramatist, and novelist, who headed the Romantic movement in France. Dramas: *Hernani, Lucrece Borgia*. Novels: *Notre Dame, Les Miserables*.

HUME, ALLAN OCTAVIAN (1829-1912): Born in London, worked in India. Founded Indian National Congress in 1885.

HUSSAIN, MAQBOOL FIDA (b. 1915): Well-known Indian artist. Member, Rajya Sabha.

HUSSAIN, Dr. ZAKIR (1897-1969): Second Vice-President and third President of India. Staunch nationalist, educationist. Bharat Ratna, 1963.

HUXLEY, ALDOUS (1894-1963): English novelist. Grandson of T. H. Huxley, brother of Julian Huxley, and grandnephew of Mathew Arnold. *Brave New World*.

HUXLEY, Sir JULIAN (1887-1975): Biologist and writer, grandson of T. H. Huxley and brother of Aldous; first Director General of UNESCO, 1946-8.

HUXLEY, THOMAS HENRY (1825-95): English biologist and educator; an ardent evolutionist. *Man's Place in Nature*.

IACOCCA, LEE (b. 1924): American management wizard of Italian origin. President, Ford Motor Company. Led Chrysler Corp. back



Hemingway

from the brink of bankruptcy. Resigned Chrysler chief in 1993. Known for his fight against diabetes. *Lee Iacocca* (autobiography).

IBSEN, HENRIK JOHAN (1828-1906): Norwegian playwright and poet, who revolutionised the European theatre and is known as 'the father of modern drama'. *Ghosts, The Wild Duck, The Master Builder, A Doll's House, Hedda Gabler and Peer Gynt*.

ILAIYARAJA (b. 1943): Superstar of Indian film music. Music director of nearly 700 films so far (in 17 years). The only Asian whose symphony was recorded by the prestigious Royal Philharmonic Orchestra, London.

IVAN THE TERRIBLE (1530-84): Crowned as first Tsar of Russia in 1547; an autocratic ruler who consolidated and expanded Russia.

IYER, ULLOOR S. PARAMESWARA (1877-1949): Indian poet (Malayalam) and administrator. *Umakeralam, Mangala Manjari, Kerala Sahithya Charitham*.

JACKSON, Rev. JESSE (b. 1941): American civil rights leader.

JACKSON, MICHAEL JOE (b. 1968): Popular black American singer and entertainer who has grown into a legend. A performer on record, in concert and on video, his songs are a hybrid of pop, funk, soul and rock. His 1982 album *Thriller* sold 45 m. copies. He has sold 150 m. singles, 20 times as many as the Beatles. Latest albums *Dangerous and History*. Married King of Rock 'n Roll Elvis Presley's daughter Lisa Marie Presley in 1994.

JACK THE RIPPER: The 19th century murderer of London prostitutes. Never identified.

JACKIE CHAN (b. 1954): of Hong Kong. One of world's best-loved movie stars. Made 40 films since 1976, when he was touted as the new Bruce Lee.

JAGGER, MICK (b. 1944): Lead singer of *The Rolling Stones*, rock group. British.

JATTI, Basappa Danappa. (b. 1912): Vice President of India, 1974-79. Formerly Chief Minister of Mysore and Governor of Orissa.

JAYADEVA (12th c.): Famous Sanskrit poet. *Gita Govinda*.

JEFFERSON, THOMAS (1743-1826): Third American president (1801-9), author of the Declaration of Independence, pre-eminent spokesman for human liberty.

JINNAH, MOHAMMED ALI (1876-1948): Pakistani statesman, became president of the Muslim League, and succeeded in 1947 in establishing the Dominion of Pakistan, becoming its first governor-general.

JOAN OF ARC, St. (JEANNE D'ARC) (1412-31): French patriot, and national heroine called the Maid of Orleans; of peasant parentage, she believed herself called to save France from Eng-

lish domination. Captured by the English, she was burned as a heretic; but canonised in 1920.

JOHN PAUL II (b. 1920): The first non-Italian pope in 455 years and the first Polish Pope (1978). Formerly Cardinal Karol Wojtyla, archbishop of Cracow.

JOHNSON, LYNDON BAINES (1908-73): President of the United States, 1963-9.

JOHNSON, Dr. SAMUEL (1709-84): English lexicographer, critic and literary figure. Dictionary was published in 1755. *Rasselas, Lives of the English Poets*.

JOHNSON, BEN (c. 1573-1637): English dramatist and poet who ranks with Shakespeare and Marlowe as one of the three great Elizabethan playwrights.

JOLIOT-CURIE, JEAN FREDERIC (1900-58) and his wife Irene (1896-1956): French scientists who discovered artificial radioactivity. Nobel prize winners, 1935. Joliot-Curie was one of the discoverers of nuclear fission. Irene was the daughter of Nobel Prizewinners Pierre and Marie Curie. Cancer, caused by their work, killed both.

JONES, SIR WILLIAM (1746-94), great Indologist; Mastered 28 languages - Oriental & European.

JONES, WILSON (b. 1922): Twelve-time national amateur billiards champion of India; winner of three world titles.

JORDAN, MICHAEL (b. 1963): One of world's most popular athletes called by some as the best professional basket ball player the game has seen. A two time Olympic gold medal winner. Retired in Oct. 1993, saying "I have reached the pinnacle to my career". Known as *Air Jordan* for his soaring feats.

Johnson, Michael (b. 1968) The first man to complete the 200-400 m. double at a major international championship. In Aug. '95, at Gothenburg, he ran a 19.79 second 200 m.

JOYCE, JAMES (1882-1941): Irish author, *Ulysses*.

JUNG, CARL GUSTAV (1875-1961): Swiss psychologist, one of the founders of analytical psychology. Worked with Freud.

JUSSIEU, BERNARD de (1699-c.1777): French botanist who devised the system of plant classification based on natural affinities, which was elaborated by his nephew Antoine Laurent de Jussieu (1748-1836).

KADARE, ISMAIL (b. 1934): Exiled Albanian writer. Author of essays, poems and over 15 works of fiction that have been translated into more than 40 languages. After ideological battle with the Albanian authorities, left in 1990 and settled in Paris. *The General of the Dead Army*.

KALIDASA (c. A.D. 400): India's greatest poet, dramatist and chief figure in classic San-

skrit literature. *Meghadoot, Raghuvamsa, Kumarasambhava, Sakuntala*.

KAMARAJ, KUMARASWAMI (1903-1975): Leader of the Indian national movement; President, Indian National Congress 1963; earlier Chief Minister, Tamil Nadu (1954-63). Bharat Ratna (posthumous), 1976.

KANE, PANDURANG VAMAN (1880-1972): Indian indologist, orientalist, social reformer. *History of Dharmasastra*. Bharat Ratna, 1963.

KANT, IMMANUEL (1724-1804): German philosopher. He considered the exploitation of man as the worst evil. *Critique of Pure Reason, Critique of Practical Reason, Critique of Judgment*.

KAPIL DEV NIKHANJ (b. 1959): The most popular Indian Cricket all-rounder, former Captain. World record of claiming 100 wickets in the shortest time. Achieved the unique double of 4000 runs and 400 wickets, the first ever player to do so. Set world record of 432 wickets in test matches in Feb. 1994.

KAPOOR, RAJ (1924-1988): Indian film actor, director, producer; the greatest entertainer. Main films: *Aag, Barsaat, Awara, Shri 420, Jagte Raho, Sangam*.

KARANTH, SHIVARAMA (b. 1902): A literary giant; has written novels, plays, travelogues, children's literature, essays and general science encyclopedia. One of the last surviving renaissance figures in India. *Chomana Dudi*

KARNAD, GIRISH RAGHUNATH (b. 1938): Noted Indian playwright, actor and director. Chairman of Sangeet Natak Akademi, New Delhi (1988-93).

KARPOV, ANATOLY (b. 1951): Soviet Chess Champion, 1975-85; the highest-rated player in chess history.

KARVE, DHONDO KESHAV (1858-1962): Indian social worker who championed the causes of widow marriage and women's education. Bharat Ratna, 1958.

KASPAROV, GARRY (b. 1963): The World chess champion from Russia, since 1985.

KATO, YASUO: Mountaineer of Japan who was the first man to climb the Everest (1982) in the height of winter, and the second person to conquer it thrice.

KAUNDA, KENNETH (b. 1924): African leader of international standing. Architect of the independence of Zambia and its first president (1964-1991). Later President, the opposition United National Independence Party.

KEATS, JOHN (1795-1821): Youngest of the major poets of the romantic period in English literature. In his short life, he produced poems notable for richness of imagination and beauty of thought. *Odes, Isabella, The Eve of St. Agnes*.

KELAPPAN, KIZHARIYOOR (1890-1971): Sarvodaya leader and social reformer of India;

participated in independence struggle, campaigned against social evils. Founder-President of Nair Service Society sponsored first by Mannath Padmanabhan.

KELLER, HELEN (1880-1968): Blind and deaf American author and educator of the blind; a remarkable woman. *The Story of My Life, The World I live in, Out of the Dark*.

KELLOGG, WILL K. (1860-1951): US businessman, philanthropist; founded breakfast food company.

KENNEDY, JOHN FITZGERALD (1917-63): 35th President of the U.S.A., (1961-3); the youngest and the first Roman Catholic to be elected. A dynamic president who won popularity all over the world; a man of vision and courage. He and his brother Robert were assassinated. *Profiles in Courage*.

KEPLER, JOHANNES (1571-1630): German astronomer and mystic. His laws of planetary motion dealt a death-blow to Aristotelian cosmology.

KEVORKIAN, JACK Dr. (b. 1928): Retired pathologist, known as Dr. Death for assisting in suicide of terminally ill patients in pain. Facing trial for his action.

KEYNES, JOHN MAYNARD (1883-1946): The most influential British economist of early 20th century. His *Treatise on Money* (1930) and *The General Theory of Employment, Interest and Money* (1936) influenced economic thought all over the world.

KHAN, ABDUL GAFFAR KHAN (1890-1988): The 'Frontier Gandhi' worked among the Pathans of North West Frontier Province. Built the Khudai Khidmatgar (Servants of God) movement; opposed partition of India; fought for Pakhtoonistan and jailed by Pakistan Govt. several times. Bharat Ratna, 1987.

KHAN, BISMILLAH (b. 1916): Shenai maestro, from Banaras.

KHAN, USTAD ALLAUDDIN (1862-1972) of Malhar; One of the all-time greats of this century in the Hindustani music tradition. His music was an expression of spiritual purity.

KHRUSHCHEV, NIKITA SERGEYEVICH (1894-1971): Russian statesman who became leader of the Soviet Union soon after the death of Stalin; first secretary of the Soviet Communist Party, 1953-64; Prime Minister, 1958-64. Deposed.

KHURANA, HAR GOBIND (b. 1922): Born in Raipur, Punjab (India) now in Pakistan; a naturalized citizen of USA. Ph.D. from University of Liverpool. At the University of Wisconsin. Synthesized the first wholly artificial gene. Won 1968 Nobel prize for Physiology/Medicine for the interpretation of the genetic code and its function in protein synthesis. (co-winners: Robert W. Holley and W. Marshall Nirenberg).

KHUSRO, AMIR (b.1253-1325): The Persian poet of Delhi who is believed to be the author of *Sahatara* (Sitar). Real name: Abul Hassan. Lived under 11 Badshahs and served under 7 Sultans. The *qauwali* style and *chaupai* in Hindi are the contribution of this sufi poet.

KIERKEGAARD, SOREN AABYE (1813-1855): Danish philosopher, attacked organized religion, believing that man must work out own relationship with God.

KING, BILLIE JEAN (b. 1943): American tennis player. Wimbledon champion 5 times between 1966 and 1973; US. champion 4 times. Won a record 20 titles between 1961 and 1979.

KING, MARTIN LUTHER, Jr. (1929-68): American clergyman, militant, non-violent civil rights leader and Negro integration leader; Nobel peace prize (1964) for his support of the principle of non-violence in the coloured people's struggle for civil rights. Assassinated.



Martin Luther King

KING, RODNEY (b.1964): A black motorist, whose beating by white police officers in March 91 sparked the worst riots in USA this century. Jury in June 94 said he was not to be awarded punitive damages.

KINGSLEY, BEN (b. 1944): London-based actor who played the role of Gandhi in Christopher Nolan's film, *'Gandhi'*. Won best actor Oscar.

KIPLING, RUDYARD (1865-1936): British writer and a great master of the short story, born in Bombay. His vivid work portrays contemporary British rule in India. *The Light that Failed*, *Just So Stories*, *Puck of Pook's Hill* and *Jungle Books* are books for children. Nobel prize, 1907.

KIPTANUI, MOSES (b. 1971): Kenyan athlete who won the 3000m. steeplechase three times in a row at the World Championships. Brought the record to 7:59 minutes in August '95.

KISSINGER, HENRY (b. 1923): American foreign policy expert, Secretary of State 1973-7 and special adviser on national security affairs to president Nixon; known for his 'shuttle-service diplomacy'. Shared Nobel peace prize (1973) with Le Duc Tho.

KITCHLEW, SAIFUDDIN (1888-1963): A close associate of Mahatma Gandhi, founder president of the All India Peace Council, first Indian to receive Stalin Peace Prize in 1954.

KOCH, ROBERT (1843-1910): German physician and bacteriologist who discovered the bacillus of tuberculosis. Nobel prize, 1905.

KOESTLER, ARTHUR (1905-1983): Hungarian author of *Darkness at Noon*. A leading political writer of 20th century.

KOSYGIN, ALEXEI NIKOLAYEVICH (1904-80): Chairman of the Council of Ministers of the USSR (Prime Minister) after Khrushchev (1964); key technocrat and economic organiser; resigned on health grounds, 1980.

KOTNIS, DR.DWARKANATH (1910-1942): The legenday Indian doctor who became the hero of the Indian medical mission to war-torn China in 1938.

KRIPALANI, SUCHETA (1908-1974): Indian freedom fighter and first woman Chief Minister of independent India (U.P.), 1963- 67. Wife of Acharya Kripalani.

KRISHNAMURTHY, JIDDU (1895-1986): Indian philosopher of international reputation. At 20, he headed a new sect 'the Order of the Star of the East'. *The Songs of Life*.

KRISHNAMURTHY, KALKI (1899-1954): Tamil novelist, short story writer and music critic.

KRUPP, ALFRED (1812-87): German armaments magnate.

KUBLAI KHAN (1216-94): The first Mongol emperor of China; grandson of Genghiz Khan. He extended the Mongol empire by conquest, and lived in unparalleled splendour.

KUMAR, ASHOK (b.1911): India's longest serving film star, made his debut in 1936. *Achhut Kanya*, *Kismet*, *Ashirwad*, *Khatta Meetha*. Phalke Award, 1988.

KUMAR, DILIP (b.1922): Top matinee idol of India. *Anand*, *Devdas*, *Mughal E Azam*, *Deedar*, *Ganga Jamuna*, *Yehudi*, *Madhumati*. Phalke award, 1995.

KURIEN, Dr. VERGHESE (b. 1921): 'Father of India's white revolution', a synonym for co-operative milk sector. Winner of many awards including World Food Prize (1989) and Magsaysay award (1963); mobilised 6 million dairy farmers in 60,000 co-operatives to provide 3 mi. tonnes of milk daily to 200 mi. Indians. The brain behind Operation Flood. Chairman, NDDB.

KUROSAWA, AKIRA (b.1910): Japan's greatest filmmaker, creator of such classics as *Rashomon* and *The Seven Samurai*. In 1993, celebrated his 50th year as director and released *Mahda da yo!* (No, Not Yet).

LA FONTAINE, JEAN DE (1621-95): French poet of the *Fables* and author of stories in verse.

LAJPATRAI, LALA (1865-1928): Indian patriot and prominent freedom fighter, known as the 'Lion of the Punjab' (Punjab Kesari).

LAKSHMIBAI, RANI OF JHANSI (1835-1858): Queen of Jhansi, a brave warrior who took active part in the first war of Indian independence, 1857. Compared with the British Bo-

dicea and French Joan of Arc. Died in the battle.

LAO TSZE ("old philosopher") (c. 600 B.C.): Chinese philosopher who founded Taosim. *The Path to Virtue*.

LASKI, HAROLD JOSEPH (1893-1950): British political scientist, influential Fabian. Taught at London School of Economics. *Liberty in the Modern State, Democracy in Crisis*.

LAXMAN, RASHIPURAM KRISHNASWAMI (b.1927): Outstanding Indian cartoonist; brother of writer R. K. Narayan. Magsaysay award, 1984.

LE CORBUSIER (1887-1965): Pseudonym of Charles Edouard Jeanneret, Swiss architect, who widely influenced ideas of town-planning. Architect of Chandigarh (India).

LEIGH, VIVIEN (1913-1967): British actress who won Oscar in 1940 for *Gone With The Wind* for portraying *Scarlett O'Hara*.

LENDL, IVAN (b. 1960): Tennis player, born in Czechoslovakia, lives in USA. Former world number one. Beat Sweden's Henrik Holm in the final of the \$ 1.1 million Seiko indoor tennis tournament in Oct. 1992. His 92nd career title.

LENIN (VLADIMIR ILYICH ULYANOV) (1870-1924): Russian revolutionary leader and statesman; Leader of the Revolution in 1917. Liberated the country from the Czars. Head of govt, 1917-24.

LEONARDO DA VINCI (1452-1519): A great genius, one of the master artists of the high Renaissance. Italian man of science who described himself as painter, architect, philosopher, poet, composer, sculptor, athlete, mathematician, inventor, and anatomist. Best known for his *Last Supper* and *Mona Lisa*.

LESSEPS, FERDINAND (1805-94): French engineer who built the Suez Canal in 1869.

LEWIS, CARL (b. 1961): American winner of 8 Olympic gold medals and former 100 m. world record holder.

LIAQUAT ALI KHAN (1895-1951): Leader of the Muslim League (1946) and first premier of Pakistan (1947). Assassinated.

LIE, TRYGVE (1896-1968): Norwegian politician who became U.N. Secretary-General (1946-52).

LINCOLN, ABRAHAM (1809-65): Sixteenth president of USA (1861). He was a leader of the Republican party which was formed in 1856 to oppose slavery. His Gettysburg speech from which the phrase 'government of the people, by the people, for the people; comes is well-known. Assassinated.

LIPPMANN, WALTER (1889-1974): American journalist of influence, wrote for the *New York Herald Tribune*, 1931-62. His column was carried world-wide.

LIVINGSTONE, DAVID (1813-73): Scottish missionary and explorer in Africa. He discov-

ered the course of the Zambesi, the Victoria Falls and Lake Nyasa (now Lake Malawi): worked against the slave trade.

LLOYD-GEORGE, DAVID (1863-1945): British statesman and author of modern British social welfare legislation. PM (1916-22). The war of 1914-18 made him a war premier.

LOCKE, JOHN (1632-1704): English philosopher. *Essay Concerning Human Understanding*.

LOHIA, Dr. RAM-MANO HAR (1910-1967): Indian socialist, member of Parliament, a prolific writer.

LONDON, JACK (1876-1916): American writer known for short stories and adventure tales. *Call of the Wild*.

LONGFELLOW, HENRY WADSWORTH (1807-82): American poet. *The Golden Legend, Hiawatha*.

LOREN, SOPHIA (b.1934) Italian actress winner of 2 Oscars. *Two Women. Millionaire*. Golden Bear (Berlin), 1994.

LORES BONNEY (1898-1994): Pioneering aviatrix (of Australia) who in 1933 became the first woman to make the solo trip from Australia to England, flying without a radio. The first pilot to fly from Australia to South Africa, a distance of 29,000 km.

LOUIS XIV (1638-1715): King of France whose was the longest reign (61 years) in French history. A despotic ruler, builder of Versailles dominated the Europe of his day. His exhausting wars weakened France. A great period for literature.

LOYOLA, St. IGNATIUS OF (1491-1556): Spanish founder of the Society of Jesuits, a missionary order.

LUTHER, MARTIN (1483-1546): German religious reformer who began the Protestant Reformation.

LUTYENS, Sir EDWIN (1869-1944): English architect; designed the cenotaph, whitehall city plan and viceroy's house, New Delhi, British Embassy at Washington and Liverpool Roman Catholic cathedral.

LYNCH, PETER: America's leading money manager. Expert in stocks and mutual funds. Financial consultant. *One Upon Wall Street Beating The Street*.

MACADAM, JOHN LOUDON (1756-1836): Scottish inventor of the 'macadamising' system of road repair.

MACAULAY, THOMAS BABINGTON (1800-59): English historian, poet and Indian civil



Rammanohar Lohia

servant. Reformed the Indian education system. *History of England*.

MACHIAVELLI, NICCOLO (1469-1527): Italian writer and diplomat. Name associated erroneously(?) with immorality and despotism in politics. *The Prince*.

MADONNA: (Madonna Louise Veronica Ciccone) (b. 1959): World's number one female pop star with over 50 m. albums sold and more consecutive top hit singles than the Beatles; self-made icon. Her album 'True Blue' (1986) with sales of over 11 m. was number one in 28 countries. In 1986 she became the first woman to top both the singles and album charts. Her steamy book *Sex*.

MAGELLAN, FERDINAND (c. 1480-1521): Portuguese navigator, and commander of the first expedition (1519) to circumnavigate the globe.

MAHALANOBIS, PRASSANTA CHANDRA (1893-1972): Economist and statistician who was trained in Cambridge to be a physicist, returned home and joined Jawaharlal Nehru in laying the foundation of India's statistical system and economic planning. Founded Indian Statistical Institute, National Sample Survey Organisation, and the Central Statistical Organisation. Known for the 'Mahalanobis model' in planning.

MAHAPATRA, KELUCHARAN (b.1926): Trained and produced two generations of world class dancers. Responsible for the re-emergence of Odissi dance form, which he mastered by the time he was 22.

MAHAVIRA, VARDHMANA (6th cent. B.C.): Indian founder of Jainism, which teaches the sacredness of all life.

MAHESH YOGI, MAHARISHI: Immensely rich Indian Yoga expert. Began the Transcendental Meditation movement in 1959 and introduced the Beatles and others to Yogic Flying and bubbling bliss. Founded the Maharishi University of Management. Has lived in the Netherlands.

MAKARIOS III (1913-77): Archbishop, head of the Greek Orthodox church and Cypriot national leader. Deported by the British to the Seychelles in 1956, he returned in 1957 to become president of the newly independent republic in 1960.

MALAVIYA, MADAN MOHAN (1861-1946): Indian patriot, national leader and social reformer. Founder of Hindu Mahasabha (1906) and Banaras Hindu University (1916).

MALINOWSKI, BRONISLAW (1884-1942): of Poland. Considered the father of social anthropology.

MALTHUS, THOMAS ROBERT (1766-1834): British clergyman and economist who contended that population tends to increase faster than the

means of subsistence and that its growth could only be checked by moral restraint or by disease and war. *An Essay on the Principle of Population*.

MANDELA, NELSON ROLIHLELA (b. 1918): First black President of South Africa, (May '94); lawyer and politician. Imprisoned for 27 years for fighting apartheid 1964-1990. Bharat Ratna, 1990. Under his leadership, African National Congress led the South Africans to a non-racist democracy.

MANESSIER, ALFRED (1912-93): One of France's greatest abstract artists, noted for his luminous colours and schematic designs with religious overtones; also a master of tapestry and stained glass.

MANGESHKAR, LATA (b. 1929): Melody queen of India. Playback singer for half a century. Born in a family of musicians, she took to singing at 13. Thousands of songs including renderings in all languages of India and about 10 other languages. Phalke award, 1989.

MANSINGH, SONAL (b.1944): Started Centre for Indian Classical Dances (1977). First woman to learn Chhau dance.

MAO TSE-TUNG (1893-1976): Architect of the Chinese Revolution and founder of the People's Republic of China. The first Marxist to win peasant support for a national movement and power through rural guerrilla warfare. His experiment of 'Communes' and the 'great leap forward'. The 'cultural revolution' from 1965 to 1969.

MAPPILAI, K. C. MAMMEN (1873-1953): Eminent journalist, social worker and community leader of India (Kerala). He was influenced and inspired by his uncle Varghese Mappilai, a renowned litterateur, who in 1888 founded *Malayala Manorama*, India's largest-selling daily today.

MARCEAU, MARCEL (b.1923): The picasso of the mime. Bip, his celebrated mime creation, has a repertory of 44 sketches, each a mimed minuet to the foibles of human nature.

MARCONI, GULIELMO (1874-1937): Italian inventor who developed the use of radio waves as a practical means of communication. Nobel prize, 1909.

MARIE ANTOINETTE (1755-93): Queen of France, wife of Louis XVI; accused of treason, she and her husband were beheaded in the French Revolution.

MARLOWE, CHRISTOPHER (1564-93): English dramatist and precursor of Shakespeare. *Dr. Faustus*, *Tamburlaine*.

MARQUEZ, GABRIEL GARCIA (b.1928): Colombian writer and Poet. Nobel Prize-1982. *One Hundred Years of Solitude*. His writing style is known as magic realism.

MARSHALL, GEORGE CATLETT (1880-1959): U.S. Army Chief of Staff (1939-45). Known

for the Marshall Aid plan for European reconstruction. Nobel prize for peace (1953) for his contributions to European recovery.

MARX, KARL (1818-83): The most important of all socialist thinkers, this German, in conjunction with his friend Engels, wrote the *Communist Manifesto* of 1848 for the Communist League, of which he was the leader. Founder of modern international communism. He wrote *Das Kapital*, a deep analysis of the economic laws that govern modern society.

MAUPASSANT, GUY DE (1850-93): French author, considered one of the masters of the short story. His writings show penetrating realism. *Boule de Suif*, *Le Maison Tellier*, *La Parure* (*The Necklace*).

MAVALANKAR, GANESH VASUDEO (1888-1956): Played active role in India's Non-cooperation and Civil Disobedience Movement. First Speaker of the Lok Sabha of India republic.

MAXWELL, JAMES CLERK (1831-79): British physicist, whose work revolutionised fundamental physics. Wrote his first scientific paper when he was 15.

MAZZINI, GIUSEPPE (1805-72): Italian patriot, who dominated the first phase of the movement for nationalism in the 19th century; advocated a free and united Italy.

Mc ENROE, JOHN (b. 1959): U.S. tennis genius, the youngest ever to win U.S. men's singles (1979).

MEHMOOD, TALAT (b. 1924): Ghazal singer par excellence. Best time 1950s and 1960s. Once Dilip Kumar's voice.

MEHTA, HARSHAD (b. 1954): Bombay stock broker who is facing prosecution in a \$ 1.7 billion scam that broke in 1992.

MEHTA, PHEROZESHAH (1845-1915): One of the founders of the Indian National Congress, a pioneer of a 'Swadeshi'; largely responsible for the Acts of 1872 and 1888, the Magna Carta of municipal freedom.

MEHTA, VED (b. 1934): Famous Indian author and journalist. settled in New York. Lost his sight at the age of 3. Writer for the *New Yorker*. *Portrait of India*, *Face to Face*, *Walking the Indian Streets*, *Mahatma Gandhi and his Apostles*.

MEHTA, ZUBIN (b. 1936): Eminent Indian-born musician and conductor of world-famous Israel Philharmonic Orchestra and the 130-member New York Philharmonic Orchestra. His romance with music began at the age of 2 when he slept with his pair of drumsticks under his pillow.

MEIR, Mrs. GOLDA (1898-1978): Israeli political leader, leading member of the labour party. Prime Minister, 1969-74.

MENCHU, RIGOBERTA (b. 1959): Guatemalan Indian leader and human rights campaigner. Nobel Peace Prize (ninth woman to win

it), 1992. Represents the struggle of all indigenous peoples and Blacks in the Americas for basic rights.

MENDEL, GREGOR JOHANN (1822-84): Austrian botanist who discovered the basic laws of heredity. His observations of the common garden pea resulted in the law which bears his name.

*** MENON, KUMARA PADMANABHA SIVA-SANKARA (1898-1982):** Indian diplomat and author. Foreign Secretary whose son K.P.S. Menon Jr. also held the same post later. *Resurgence of India*, *Delhi-Chungking*, *The Flying Trioka*.

MENON, MRS. LAKSHMI N. (1899-1994): The first woman foreign minister (of state) of India, in Nehru's cabinet (1957-66). Delegate to UN General Assembly; nominated to Rajya Sabha (1952).

MENON, VENGALIL KRISHNAN KRISHNA (1896-1974): Defence Minister and Minister without Portfolio in Nehru Cabinet. Founded India League in London. Represented India at U. N. Gen. Assembly. Orator and writer, distinguished himself with incandescent eloquence at the U. N. (Kashmir issue, 1955).

MENON, VALLATHOL NARAYANA (1878-1958): Indian (Malayalam) poet, patriot. Founder of Kerala Kala Mandalam. *Badhiravilapam*, *Chithrayogam*, *Magdalana Mariam*, *Sahithya Manjari*.

MENON, VAPPALA PANKUNNI (1894-1966): Indian administrator who worked with Sardar Patel in the reorganisation of over 600 princely states of India.

MENUHIN, YEHUDI (b. 1916): World-famous violinist. b. New York of Russian Jewish parentage. A remarkable child prodigy, he first appeared as soloist at the age of seven.

MERCOURI, MELINA (1924-1994): Greek actress and activist. Known as 'the last Greek goddess'. Became an instant international star (1960) in 'Never On Sunday'. Foe of military regime. Culture Minister in Socialist Govt. (1981-85, 1994).

MICHELANGELO (1475-1564): Italian painter, sculptor, architect and poet. The ceiling of the Sistine Chapel (a surface of about 6,000 square feet), the Last Judgement behind the chapel altar, his marble Pieta (St. Peter's) the statue of David (Academy, Florence), the great figure of Moses (San Pietro in Vincoli, Rome), and the four allegorical figures Day, Night, Dawn, Twilight are his great works.

MILL, JOHN STUART (1806-73): English philosopher and economist. Son of James Mill, economist. *On Liberty*, *Principles of Political Economy*.

MILNE, ALAN ALEXANDER (1882-1956): English humorist and poet whose work for children is still widely read.

MILTON, JOHN (1608-74): The only great epic poet in English. After he had become blind he wrote *Paradise Lost*, one of world's greatest epics. *Paradise Regained*, *Samson Agonistes*.

MITCHELL, MARGARET (1900-49): American novelist whose one novel the best-selling and Pulitzer-prize-winning *Gone with the Wind* (1936) has been translated into 27 languages and 25 million copies sold so far. Equally popular film (1939).

MITRA, SOMBHU (b.1915): A peerless stage actor whose influence on Bengali and Indian theatre scene is great. Staged plays (for five decades) by Tagore, Sophocles, Ibsen and Brecht.

MITTERRAND, FRANCOIS (b. 1916): French socialist politician, proclaimed fourth president of the Fifth Republic, 1981. Re-elected in 1988 for second 7-year term.

MOHAMMED, PROPHET (570-632): Mohammed is believed by Muslims to be the last Messenger of God to mankind. *The Quran*, the Sacred Book of Islam, is believed to be the word of God, revealed to Mohammed in stages over 23 years. Received the first revelation and the command to preach at the age of 40; taught that there is only one God. Forced to migrate from Mecca to Medina in 622, the year of the hijra, he returned to Mecca, where the Kaaba (constructed by Prophet Abraham) is regarded as the holiest shrine in Islam and the focal point of the Haj pilgrimage.

MOILERE (JEAN BAPTISTE POQUELIN), (1622-73): French playwright and actor. *Le Tartuffe*, *Le Misanthrope*, *Le Bourgeois gentilhomme*.

MOLOTOV, VYACHESLAV MIKHAILOVICH (1890-1986): Russian revolutionary leader and Soviet statesman. Commissar for foreign affairs, 1939-49. chief representative of the Soviet Union at post-war conferences. Expelled from the Communist Party, 1964, reinstated, 1984.

MONROE, MARILYN (1926-62): {real name: Norma Jean Mortenson (later) Baker}. American film star and charming sex symbol of her times. *The Seven Year Itch*, *The Misfits*, *Some like it Hot*.

MONTESSORI, MARIA (1870-1952): Italian educationist, who developed an educational system based on giving children freedom in a specially prepared environment, under the guidance of a directress.

MOON, Dr SUN MYUNG (b.1920): Evangelist, born in Korea, founder of the Unification Church, which he shifted to USA; has a multimillion dollar business empire. He says that it is the union of male and female forces. He has 1.2 m. followers.

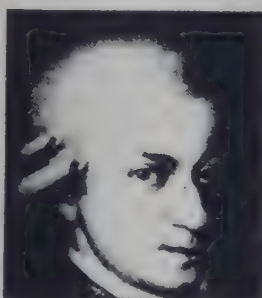
MOORE, BOBBY (1941-1993): Soccer legend, he captained England to its only World Cup triumph to date in 1966. In the 19-year career,

played 1000 league games; made a then-record 108 appearances for England.

MORAES, FRANK (1907-1974): Eminent Indian journalist. Editor, *Indian Express*, *Times of India*. His son Dom Moraes, poet.

MORE, SIR THOMAS (1478-1535): English statesman, author and martyr; Lord Chancellor. On his refusal to recognise Henry VIII as head of the church, he was executed. His *Utopia* describes an ideal state. Also called St. Thomas More.

MORSE, SAMUEL (1791-1872): American artist and inventor; Invented telegraphy and the dot-and-dash code that bears his name.



Mozart

MOUNTBATTEN OF BURMA, (Louis Mountbatten) (1900-79): British admiral and statesman, great-grandson of Queen Victoria. In the second world war he became chief of combined operations in 1942. The last viceroy of India and first governor-general of the dominion. Assassinated by Irish extremists.

MOZART, WOLFGANG AMADEUS (1756-91): One of world's great musical geniuses. Austrian composer, began his career at four and toured Europe at six. In 1781 he settled in Vienna. Wrote masterpieces in every branch of music. Three of the greatest operas in musical history are his *Marriage of Figaro*, *Don Giovanni* and *The Magic Flute*. His last composition was the *Requiem Mass*, a work of tragic beauty.

MUGABE, ROBERT GABRIEL (b. 1924): first Prime Minister of independent Zimbabwe, 1980; now President.

MUELLER, MAX Prof. (1823-1900): German indologist and linguist; Helped interpret Indian culture abroad. Prof. of Sanskrit at Oxford University, 1948. Research into Rig Veda. *India-what can it teach us*, *History of Ancient Sanskrit Literature*, *The Science of Language*.

MUSSOLINI, BENITO (1883-1945): Fascist dictator of Italy, 1922-43. In 1940 he entered the war on the side of Hitler. Defeat in North Africa and the invasion of Sicily caused the collapse of his government. Killed by partisans.

MURDOCH, RUPERT (b. 1931): Australian-turned-American media baron. Employs over 30,000 people, publishes 60 m. papers every week in 4 continents, owns nearly a dozen TV stations and networks, publishing firms and a movie company. Recent addition of \$ 525 m. STAR-TV with a footprint across 53 countries.

NABOKOV, VLADIMIR (1899-1977): Russian-American novelist, poet, and an au-

thority on butterflies. Acclaimed for the imaginative power of his novels. *Lolita*.

NAGARJUNA (1st century): Philosopher, scientist and a great figure of Court of Kanishka who Hieun Tsang called "one of the four lights of the world". Enunciated the Theory of Relativity in his great work *Madhyamike Sutra*.

NAIDU, SARAJINI (1879-1949): Indian poetess of English language, known as the 'Night-ingle of India'. Took part in freedom struggle. First woman Governor of an Indian state (U.P.). *Golden Threshold, Bird of Time, Broken Wing*.

NAIPAUL, VIDIADHUR SURAJPRASAD (b. 1932): West Indian (Trinidad) novelist, who has lived in Britain since 1950. *Miguel street, A House for Mr. Biswas, A Bend in the River, A Way in the World*.

NAMBOODIRIPAD, ELAMKULAM MANACKAL SANKARAN (b. 1909): Leading Indian politician, thinker, writer, General Secretary of Communist Party of India (Marxist), Chief Minister, (of India's first elected Communist government) Kerala-1957-59, '67-'69.

NANAK (1469-1538): Indian guru, who tried to put an end to religious strife, teaching that 'God is one, whether he be allah or Rama'. His followers are the Sikhs.

NANDA, GULZARILAL (b. 1898): Gandhian, India's former acting Prime Minister, and veteran labour leader.

NAOROJI, DADABHAI (1825-1917): A great public figure of India during 1845-1917.

Freedom fighter and educationist. The first Indian to become member in British Parliament (1862). President of Indian National Congress thrice. Known as 'the Grand Old Man of India'. Also acclaimed as the Father of Indian Politics and Economics.

NAPIER, JOHN (1550-1617): Scottish mathematician and clergyman. Invented logarithms (published 1614) and the modern notation of fractions, improvements in the methods of mathematical expression which helped to advance cosmology and physics.

NAPOLEON I (BONAPARTE) (1769-1821): French emperor and general. His brilliant victories over Austrians and Russians made him practically the master of Europe. A disastrous retreat from Moscow in 1812. The Allies forced him to abdicate and retire to Elba. He emerged again in 1815, to be defeated at Waterloo and exiled to St. Helena.

NARAIN, JAYAPRAKASH (1902-1979): Sardar leader of India, known popularly as Lok-

nayak. A great freedom fighter and social reformer with strong socialistic zeal; author. He was instrumental in the formation of the Janata Party which defeated the congress party in 1977.

NARAYAN, RASHIPURAM KRISHNASWAMI (b. 1906): Famous Indian writer in English. *The Guide, Swami and Friends, The English Teacher, Waiting for the Mahatma, Malgudi Days, The Ramayana*.

NARAYANAN, KOCHERIL RAMAN (b. 1921): Vice President of India, 1992. Former diplomat (ambassador to China, USA, etc). Member of Parliament, educationist (Vice Chancellor, Jawaharlal Nehru University, Delhi). Union Minister (Planning, External Affairs, Science and Technology).

NARENDRA DEV, ACHARYA (1889-1956): Indian scholar, socialist leader and educationist. Wrote *Baudha-dharma Darshan*. A leader of the Congress Socialist Party (1934) and Vice Chancellor (Lucknow and B.H.U.).

NARLIKAR, Dr. JAYANT V. (b. 1938): Indian astronomer. Winner of 1990 Indira Gandhi award for Science Popularisation. Director, model Inter-University Centre for Astronomy and Astrophysics. Rashtra Bhushan Foundation award in 1981 for his research into 'black holes'.

NASSAR, GAMAL ABDEL (1918-70): Egyptian statesman and leader of the Arab world. One of the leaders of the coup of, 1954 that deposed General Neguib. President, 1956. Nationalised the Suez Canal in 1956. Defeated the hands of Israel in 1967. One of the founders of the Non-Aligned Movement.

NAVRATILOVA, MARTINA (b. 1956): Czechoslovakia, U. S. citizen. One of the all time greats in tennis. Wimbledon 9 times during 1978-90; US Open 4 times during 1983-87. In 1994, bade goodbye to her tennis career. Career earnings more than \$ 19 m.

NAYAR, MIRA (b. 1957): Indian film director of 'Salaam Bombay'. She won the Golden Camera award at Cannes festival, 1988. Also directed 'Mississippi Masala'.

NEHRU, PANDIT JAWAHARLAL (1889-1964): Indian national leader and statesman. First Prime Minister (1947-1964) and architect of modern India. Freedom fighter, frequently imprisoned for political activity. Close associate of Mahatma Gandhi. An ardent democrat and an internationalist. Under Nehru, an advocate of scientific method and modern technology, India made technical, industrial and social advances. With Nassar and Tito, founded the Non-Aligned Movement. His daughter Indira became India's first woman Prime Minister in 1966. *Glimpses of World History, Discovery of India*.

NELSON, HORATIO (1758-1805): Foremost admiral in the history of England, he went to sea at 12. In the wars, he lost his right eye and right



Guru Nanak

m. Destroyed the French fleet at Trafalgar (1805), but lost his life.

NERO, CLAUDIUS CAESAR (A.D. 37-68): Roman emperor. Weak and licentious; persecuted Christians. In his reign occurred the fire of Rome. Committed suicide.

NEWMAN, JOHN HENRY CARDINAL (1801-1890): One of the outstanding religious thinkers and essayists of 19th century; author of 'Lead, Kindly Light'. *Apologia pro Vita Sua*.

NEWTON, Sir ISAAC (1642-1727): English scientist, known for his work on the composition of white light, the calculus and his theory of gravitation. *The Principia*.

NICHOLAS II (1868-1918): Last emperor and Tsar of Russia. Revolution broke out in 1917 and he and his family were shot dead.

NIETZSCHE, FRIEDRICH (1844-1900): German philosopher and poet, known for his concept of the overman or superman. His teaching was that only the strong should survive. *Thus Spake Zarathustra, Beyond Good and Evil, The Will to Power*.

NIGHTINGALE, FLORENCE (1820-1910): English nurse and founder of modern nursing. During the Crimean war, she organised a nursing service to relieve the sufferings of the British soldiers. Known as 'The Lady with the Lamp'.

NIVEDITA, SISTER (1867-1911): Irish woman whose real name was Margaret Elizabeth Campbell who became disciple of Swami Vivekananda (who gave the name Nivedita, "the dedicated") in India: worked for the emancipation of the Indian woman. 12 years in India.

NIXON, RICHARD MILHOUS (1913-1994): Republican president of the U.S., 1969-74. Negotiated the withdrawal of American troops from S. Vietnam and a process of reconciliation with China begun. The Watergate conspiracies led to his resignation, 1974.

NKRUMAH, KWAME (1909-72): Ghanaian leader, first premier of Ghana, 1957. Overthrown in 1966.

NOBEL, ALFRED BERNHARD (1833-96): Swedish inventor and philanthropist. Discovered dynamite, and amassed wealth from the manufacture of explosives. Bequeathed a fund of annual prizes to those who had contributed most to the benefit of mankind in the fields of physics, chemistry, medicine, literature and peace.

NOSTRADAMUS OR MICHEL DE NOTRE DAME (1503-66): French astrologer and physician, known for his prophecies in centuries.

NYERERE, JULIUS (b. 1922): Former Tanzanian President and popular African leader. Member, South Commission.

OSBEROI, MOHAN SINGH (b. 1900): India's legendary hotelier. From humble beginning rose

to own international chain of hotels. Member of Parliament, 1962 & 1967.

OGILVY, DAVID (b. 1912): Doyen of the advertising world, founder of the international ad agency, Ogilvy & Mather. *Confessions of an Adman, Blood, Brains and Beer*.

OLDHAM, THOMAS (1816-1878): A pioneer in the geological explorations on the coal resources of India. Associated with the establishment of the Geological Survey of India.

OLIVIER, LAURENCE, (1907-1989): British actor and director, especially in Shakespearean roles. He also produced, directed, and played in films, including Henry V, Hamlet, and Richard III, and in television dramas.

OMAR KHAYYAM (c. 1050-1123): Persian poet and astronomer. His *Rubaiyat*, which won universal fame, translated into English by Edward Fitzgerald in 1859.

ONASSIS, ARISTOTLE (1906-75): Greek billionaire and shipping magnate who became more famous when he married Jacqueline, the beautiful widow of former US president J.F. Kennedy.

OORT, JAN (1900-1992): Dutch astronomer who established that the Milky Way galaxy rotates and that the earth's solar system lies on its outskirts. Proposed the existence of the Oort Cloud, a vast collection of ice chunks far beyond Pluto now thought to be the birthplace of comets.

ORWELL, GEORGE (ERIC ARTHUR BLAIR) (1903-50): English satirist, born in India. *Animal Farm, Nineteen Eighty-Four*.

OTTO I (THE GREAT) (912-973): King of Germany and Holy Roman Emperor.

OWENS, JOHN CLEVELAND ('JESSE') (b. 1913): American athlete. Only man to win 4 track and field gold medals (100 m, 200 m, long jump, 4x100 m relay) in single Olympics (1936). In an athletic meet in 1935 he broke 6 world records in 45 minutes.

PACKER, KERRY (b. 1937): Australian media mogul believed to be the richest person in Australia.

PAES, LEANDER (b. 1974): Indian winner of Wimbledon junior men's singles title, 1990.

PALKHIVALA, NANI (b. 1920): Eminent Indian jurist. Ambassador to USA, 1977-79.

PANDIT, VIJAYA LAKSHMI (1900-1990): Sister of Jawaharlal Nehru; took active part in the congress movements; First woman in India to become minister (U.P., 1936); India's first High Commissioner to the United Kingdom (1956-62); Ambassador to the U.S. (1949-51) and USSR. The first woman President of UN General Assembly (1954). Governor, Maharashtra (1962-64), Parliament Member (1964 and 1967).

PANIKKAR, SARDAR K. M. (1894-1963): Indian scholar, journalist, historian, adminis-

trator, diplomat. Minister in Patiala, Bikaner. Ambassador in China, Egypt and France. Member, States Reorganisation Commission. Vice-Chancellor, Kashmir & Mysore Universities.

PANT, GOBIND BALLABH (1887-1961): Leading figure in the Indian freedom movement; Chief Minister, U.P. and Home Minister in Nehru cabinet. Bharat Ratna, 1957.

PARKS, ROSA (b. 1913): The black American woman whose refusal in 1955 to give up her seat on a bus to a white man helped launch the civil rights movement in the South.

PASOLINI, PIER PAOLO (1922-75): Italian film maker, poet, novelist and critic. *Ragazzetti Vita* (novel), *Ceneri di Gramsci* (poems) and (films; *Mamma Roma*, *The Gospel According to Saint Mathew*, *La ricotta*.

PASTERNAK, BORIS (1890-1960): Russian writer and poet. In 1958 awarded Nobel Prize for his novel *Dr. Zhivago* (which had been refused publication in USSR), but declined the offer, filmed by David Lean.



Louis Pasteur

PASTEUR, LOUIS (1822-95): French chemist, founder of microbiology. His investigations into infectious diseases led to the science of immunology. The Pasteur Institute was founded in 1889.

PATEL, Dr. INDRAPRASAD GORDHANBHAI (b. 1924): Noted Indian economist. Served in IMF; Formerly Chief Economic Adviser, Secretary, Economic Affairs Dept., and Governor, RBI; Director, London School of Economics (1984-1990).

PATEL, SARDAR VALLABHAI (1875-1950): The "Iron Man of India", Patel was a leading freedom fighter and prominent Indian who worked closely with Mahatma Gandhi. Played a key role in the integration of India's princely states with the Union. Deputy Prime Minister in the Nehru government. Bharat Ratna (posthumous), 1991.

PATHAK, GOPAL SWARUP (1886-1982): Vice-President of India, 1969-1974.

PATKAR, MEDHA (b. 1956): Indian social activist, environmentalist; firebrand leader of Save Narmada movement. Right Livelihood Award, 1991.

PAUL, SWRAJ (b. 1931): Britain-based Indian industrialist, who owns companies in U.K., Australia, Spain and N. America. One of the richest men in the world today, with property of \$500m.

PAVAROTTI, LUCIANO (b. 1935): Greatest Italian singer.

PAVLOV, IVAN PETROVICH (1849-1936): Russian physiologist, known for his experiments on the regulation of the digestive glands by conditioned reflexes and the relation between psychological stress and brain function. Nobel Prize, 1904.

PAX, OCTARIO (b. 1914): Mexican Poet. Nobel Prize for literature, 1990. Mexican ambassador to India 1962-68. *Labysingth of Solitude*, *Sun Stone*.

PEALE, Rev. NORMAN VINCENT (1899-1993): One of the best known religious leaders of USA, who preached positive thinking for more than half a century. His 1952 book *The Power of Positive Thinking* was the model for a flood of self-help books. His life-story was the subject of the 1964 movie *One Man's Way*.

PEARSON, LESTER BOWLES (1897-1972): Canadian statesman, minister for external affairs (1948-57) and Prime Minister (1963-8). He supported the United Nations. Nobel Peace Prize, 1957.

PELE (EDSON ARANTES DO NASCIMENTO) (b. 1940): Brazilian soccer player, considered by many to be the finest player in the history of the game. A world star at 17. Played in all four World Cup championship tournaments from 1958 to 1970. The first player ever to play for three world championship teams. President of Brazil declared Pele a national treasure. Retired in 1977. Scored 1281 goals in 1363 games.

PERON, JUAN DOMINGO (1895-1974): President and dictator of Argentina. Reform based on nationalism, populism and state socialism (known as peronismo). Second wife Evita Duarte Peron had great political following. Overthrown by army (1955), went into exile, returned (1973), re-elected president. 3rd wife Malibela Peron succeeded him as President, on his death.

PHULE, JYOTIRAO GOVINDRAO (M. HATMA) (1827 -1890): A pioneer of social reform, whom Dr. Ambedkar hailed as his guru. Belonged to the Mali community of horticulturists of Pune. Founded the Satyashodhak Samaj which created social awakening.

PICASSO, PABLO RUIZ (1881-1973): Spanish painter, sculptor and ceramicist. Settled in Paris in 1903. He and Braque were the originators of Cubism. The best known single work is his mural *Guernica*.

PILLAI, THAKAZHI, SIVASANKARA (b. 1915): Indian writer (Malayalam) who won Jnanpith award (1984). *Chemmeen*, *Kanyasulkam*, *Rantitangazhi*.

PITMAN, Sir ISSAC (1813-97): English inventor of a system of phonographic shorthand.

PITT, WILLIAM (1759-1806): English statesman; the youngest Prime Minister (at 24) in 1783. Called 'the Younger Pitt'.

PLATO (427-347 B.C.): Greek philosopher and educator; pupil of Socrates, teacher of Aristotle. One of the most influential thinkers of all time. *Dialogues*, which includes *the Republic*, the longest and most celebrated.

POE, EDGAR ALLAN (1809-49): American poet and story writer. His poems include *The Raven*, *Helen* and *Annabel Lee*.

POST, EMILY (1873-1960): Writer and arbiter of American manners. Author of *Emily Post's Etiquette*, and a syndicated newspaper column. Succeeded by Elizabeth Post, who is succeeded by Peggy Post.

POLO, MARCO (c. 1256-1323): The most famous European traveller in the Far East. The Venetian made journeys through China, India and other eastern countries, visited the court of Kublai Khan. *The Book of Marco Polo*.

POMPIDOU, GEORGES (1911-74): French politician, premier and President, after de Gaulle (1959).

POPE, ALEXANDER (1688-1744): English poet, famous for his mastery of the heroic couplet. His brilliant satire was often directed against contemporaries. *The Rape of the Lock*, *The Dunciad*, *Essay on Criticism*, *Essay on Man*.

PRASAD, Dr. RAJENDRA (1884-1963): Indian statesman and devout Gandhian. First Vice-President of the Republic of India, 1950-62. Was a member of Constituent Assembly. Bharat Ratna, 1962.

PREM CHAND, MU-NSHI (1880-1936): Hindi writer whose real name was Dhanpatrai. Wrote *Ramu* under pen-name Nawabrai. A pioneer of modern social fiction. *Godan*, *Sevasadan*, *Samanch*, *Ghaban*, *Nirmala*.

PRESTLEY, ELVIS (1935-1977): Famous American Pop singer, the major figure in the development of rock 'n' roll.

PRESTLEY, JOHN BOYNTON (1894-1984): English novelist, essayist, critic and playwright. *Good Companions*, *Angel Pavement* (novels), *Verger Corner* (play).

PROUST, MARCEL (1871-1922): French novelist whose masterpiece was the 12-volume *À la recherche du temps perdu*, strongly autobiographical in theme and an exploration of memory and perception.

PUSHKIN, ALEXANDER (1799-1837): Generally considered the greatest of Russian poets. His place in Russian literature ranks with Shakespeare's in English. *Eugene Onegin*, *The Captain of the Caucasus*.

Pythagoras (c. 582-500 B.C.): Greek philosopher and mathematician. Founded a brotherhood who saw in numbers the key to the understanding of the universe.

RASIMODO, SALVATORE (1901-1968): Italian poet associated with hermeticism. Nobel

Prize, 1959: *Water and Land*, *Sunken Oboe*, *And It's Suddenly Evening*.

QUISLING, VIDKUN (1887-1945): Norwegian politician who helped the enemy during German invasion of Norway. Seized as a traitor and shot. The word 'quisling' means 'traitor'.

RADHAKRISHNAN, Dr. SARVEPALLI (1888-1975): Indian scholar, philosopher, writer and statesman. First Vice-President (1952-62) and second President (1962-7) of India. Formerly a professor at Oxford, and Chairman of UNESCO. Bharat Ratna, 1954; Templeton award, 1975. *Hindu View of Life*, *Indian Philosophy*, *Bhagavad Gita*.

RAFI, MOHAMMED (1926-80): India's great playback singer. More than 20,000 songs sung in different languages.

RAJ, Dr. KAKKADAN NANDANTH (b. 1924): Leading Indian economist. Formerly Professor and Vice-Chancellor, Delhi University, Director of Delhi School of Economics and member, Economic Advisory Council to the PM. Hon. Fellow, American Economic Association. Associated with Centre for Development Studies, Thiruvananthapuram, of which he is one of the founders.

RAJAGOPALACHARI, CHAKRAVARTI (1879-1972): The first and last Indian Governor-General of India (1948-50). Known as Rajaji. Earlier, Chief Minister, Madras; Union Minister, Home Minister in Nehru's cabinet, and Governor of West Bengal. Founded Swatantra Party. Bharat Ratna, 1954.



Ravi Varma

RAJA RAM MOHAN ROY (1774-1833): Great social reformer of India; worked for the abolition of 'sati', child marriage and 'Purdah'. Founder of Brahma Samaj. Great scholar of Arabic, Persian and Sanskrit.

RAJA RAVI VARMA (1848-1906): One of the greatest early Indian artists, from the royal family of Kilimanoor, Kerala. Pioneered oil painting in India.

RALEIGH, Sir Walter (1552-1618): adventurer and writer. In 1584 began the colonisation of Virginia. He was executed.

RAMACHANDRAN G. (1904-1995): Gandhian with seven decades of public life, devoted to the rural uplift of India. Entered freedom struggle at 17.

RAMACHANDRAN, MARATHUR GOPALA (1917-1987): Film star-turned politician of India, Chief Minister of Tamil Nadu. Bharat Ratna, 1988 (posthumous).

RAMAKRISHNA PARAMHAMSA, Sri (1836-1886): Great religious leader of India who taught that God-realisation is the only goal of life. Chief disciple was Swami Vivekananda. Ramakrishna Mission after his name.

RAMAN, Dr. CHANDRASEKHARA VENKATA (1888-1970): Indian physicist whose research on the diffusion of light and discovery of "Raman effect" (a phenomenon of scattered light rays) earned him Nobel prize, 1939. Founded Indian Institute of Science, Bangalore. Lenin Peace Prize, 1958. Bharat Ratna, 1954.



C. V. Raman

RAMANNA, Dr. RAJA (b. 1926): Indian nuclear physicist; Formerly, Director, Bhaba Atomic Research Centre, Secretary, Atomic Energy Dept., Chairman, Atomic Energy Commission (1984), Union Minister.

RAMANUJAN, SRI-NIVASA (1887-1920): One of the greatest mathematicians India has ever produced. Deprived of formal education in early life, he became a Pure Mathematician of the highest order, with prime interest in the theory of numbers.

RAO, PAMULAPARTI VENKATA NARASIMHA. (b. 1921): Prime Minister of India since June, 1991. State (Andhra Pradesh) Assembly Member and Minister, 1957; Chief Minister 1971-73; Parliament Member 1974; Union Minister (External Affairs, Defence, Human Resources) 1980 onwards.

RAPHAEL, SANTI (1438-1520): Italian painter and architect—the youngest of the three great artists of the High Renaissance. Famous for many graceful paintings of the Madonna and child. For some time, architect in charge of the rebuilding of St. Peter's.

RASPUTIN, GRIGORI (1871-1916): Russian courtier and religious figure. At the court of Nicholas II, he exerted influence over the Tsarina. Murdered by a group of nobles.

RAY, SATYAJIT (1921-1992): The greatest film director India has produced. Won special Oscar award and Bharat Ratna in 1992. Important films: *Pather Panchali*, *Aparajita*, *Charulata*.

REAGAN, RONALD (b. 1911): U.S. President, 1981-88; former T.V. and film star, 1937-66. Governor of California, 1967-74.

REDDY, NEELAM SANJIVA (b. 1913): President of India, 1977-1982, before which he was Chief Minister (A.P.), Union Minister, and Speaker, Lok Sabha. Jailed several times before Independence.

REMBRANDT, HARMENSZON (1606-69): Dutch painter and etcher, one of the undisputed

giants of Western art. His output includes portraits, landscapes, large groups, etchings, and drawings.

REUTER, PAUL JULIUS (1816-99): German pioneer of telegraphic press service, who organised Reuter's international news agency.

RHODES, CECIL JOHN (1853-1902): British statesman and empire-builder. Made fortune in South Africa at the diamond mines and at 35, was one of world's richest men. Prime Minister of Cape Colony; Developed Rhodesia.

RICARDO, DAVID (1772-1823): English political economist. By occupation, a London stockbroker. *Principles of Political Economy and Taxation*.

RICHARD, CLIFF (b. 1940): British pop star born in India as Harry Rodger Webb. *Living on a Prayer* hit of 1959. *Congratulations* (1969). A total of 115 songs to his credit. Made a knight in 1991 for his services to charity.

RICHTER, Dr. CHARLES F. (1900-1985): American inventor of Richter scale, which gauges the energy released by an earthquake as measured by ground motion recorded on a seismograph.

RIMBAUD, JEAN NICOLAS (1854-91): French poet. Poetic career was only for 4 years, ending 1873, but he prepared the way for modern symbolism. At 18 completed his memoirs, *Saison en Enfer*.

ROBERTS, JULIA (b. 1970): The most successful American star-actress after Marilyn Monroe. Born in Louisiana. Earnings: \$90,000 in 1989 in *Shogun*, *Magnolias* to 300,000 in multi-million grossing *Pretty Woman* in 1990, 1m. in *Sleeping with the Enemy* (1991), 3m. for *Dying Young* (1991), 5m. in *The Pelican Brief* (1993).

ROBESON, PAUL (1898-1976): Black American singer and actor especially remembered for his singing of Negro spirituals.

ROBESPIERRE, MAXIMILIEN (1758-1794): French revolutionary; controversial, guillotined.

ROBINSON, Sir EDWARD AUSTIN GOSS (1903-1993): Economist, Professor Emeritus at University of Cambridge, and abiding friend of India. His wife the late Joan Robinson, renowned economist.

ROCKE FELLER, JOHN DAVISON (1868-1944): American philanthropist, and founder of the Rockefeller fortune; set up the Standard Oil Company, making a fortune. Founded Rockefeller University and Rockefeller Foundation.

ROLLAND, ROMAIN (1866-1944): French novelist and dramatist. His main work is a 12-volume novel, *Jean-Christophe*, the story of a musical genius. Wrote biographies of Mahatma Gandhi and Vivekananda.

RONTGEN, WILHELM KONRAD VON (1845-1923): German scientist who discovered X-rays (1895). Nobel prize, 1901.

ROOSEVELT, FRANKLIN DELANO (1882-1945): American statesman. U. S. President in 1933 (and the only man ever elected to four terms) till his death. His wife Eleanor (1884-1962) was a public figure and a political personality in her own right.

ROOSEVELT, THEODORE (1858-1919): American President. Popular because of his exploits in the Spanish-American war. Nobel prize, 1906.

ROSS, RONALD (1857-1932): British physician and bacteriologist who discovered the malaria parasite. Born in India, he was in the Indian medical service. Nobel prize, 1902.

ROUSSEAU, JEAN-JACQUES (1712-78): French political philosopher whose views did much to stimulate the movement leading to the French Revolution. *La Nouvelle Heloise, Emile, Contrat Social*.

ROW, YELLAM PRAGADA SUBBA (1896-1948): Indian scientist (in US, 1920-1940's) who, along with Fiske, discovered creatine phosphate (1926) and led the research team instrumental in the isolation and synthesis of creatine acid (1945).

ROY, BIDHAN CHANDRA Dr. (1882-1962): Chief Minister of West Bengal (India), 1948-62; eminent physician. Bharat Ratna, 1961.

ROY, MANABENDRA NATH (1887-1954): Real name, Narendranath Bhattacharya. Organised the Radical Democratic Party and Indian Federation of Labour. *India in Transition*.

ROY, PRONNOY (b. 1946): India's leading zoologist and TV commentator.

ROBINSTEIN, ARTHUR (1887-1982): of Poland. One of the greatest pianists in musical history.

ROUSHDIE, SALMAN (b. 1946): Indian born English writer. His novel *Midnight's Children* won Booker Prize. His controversial book *Satanic Verses* made Iran's spiritual leader Ayatollah Khomeini sentence him to death. Latest novel *Moor's Last Sigh* has stirred up controversy. He is hiding in England.

ROUSKIN, JOHN (1819-1900): English author, social reformer and art critic. *Modern Painters* (5 volumes), *The Seven Lamps of Architecture*, *The Stones of Venice*, *Praeterita*, *Unto the Last*.

ROUSSELL, BERTRAND (1872-1970): English philosopher, mathematician and essayist and one of the leaders in the development of mathematical logic in 20th century. He published more than 60 books, including *The Principles of Mathematics*, *The Scientific Outlook*, *The Conquest of Happiness*, *The Analysis of Matter*. Nobel prize, 1950.

ROUSADAT, ANWAR EL (1919-81): Egyptian writer and politician. President of Egypt, 1970-1971.

81. Known for his visit to Israel in November 1977 and the Camp David peace treaty with Israel. Assassinated.

SAHA, MEGHNAD (1893-1956): Indian scientist (thermodynamics, astrophysics) who first attempted (1920) to develop a consistent theory of spectral sequence of the stars from the point of view of atomic theory.

SAKHAROV, ANDREI (1921-1989): Soviet nuclear physicist and human rights activist. Nobel prize, 1975.

SAKI, pseudonym of HECTOR HUGH MUNRO (1870-1916): British satirist and humorist. *The Unbearable Bassington, Reginald*.

SALK, JONAS (1915-1995): Scientist who developed the first successful vaccine against polio and saved millions of children from the crippling disease.

SALIM ALI, Dr. (1897-1987): A famous Indian ornithologist ('The birdman of India'). Won several honours including Padma Vibhushan (1976). Author.

SAMPRAS, PETE (b. 1971): American tennis star who was ranked world No. 1 for 82 consecutive weeks until April 10, 1995. First player since Boris Becker in 1989 to win Wimbledon and the US Open in the same year (1993) and the first American since John McEnroe in 1984 to accomplish the feat.



Sankaracharya

Career official prize money \$16.44 m. (Jan. '95).

SANKARACHARYA (788-820): A great scholar and philosopher from India, who revived the Hindu religion; founder of Advaitic philosophy; established 'Math's all over India. Also known as Adi Sankara.

SARABHAI, Dr. VIKRAM (1919-1971): Indian nuclear scientist who was Chairman of the Atomic Energy Commission. Mainly responsible for the setting up of Thumba rocket station.

SARTRE, JEAN-PAUL (1905-80): French dramatist, essayist, novelist and leader of the philosophical movement, existentialism. His major philosophical work is *L'Être et le néant*. Awarded the 1964 Nobel Prize, but he declined it.

SASTRY, V.S. SRINIWASA (1869-1946): Associated with Servants of India Society; India's High Commissioner in South Africa; promoted education and worked for improving women's legal status.

SCHWEITZER, ALBERT (1875-1965): German medical missionary, humanitarian, musician and philosopher. Resigned a promising Eu-

ropean career to found at Lambarene in Africa a hospital to fight leprosy and sleeping sickness and made it a centre of service to Africans; worked there for over 50 years. Nobel Peace Prize, 1952.

SCOTT, Sir WALTER (1771-1832): Scottish novelist and poet. *Waverley, Guy Mannering, Old Mortality, Rob Roy, The Heart of Midlothian, Ivanhoe, Kenilworth, The Talisman*. Best known as the author of the Waverley Novels.

SELES, MONICA (b. 1973): of Yugoslavia. At 17, she became the youngest world champion of women's tennis. In 1991, she won 10 (including Australian Open, French Open and U.S. Open) of the 16 events (final) she played. Twenty titles before the age of 18. Stabbed mid-match in Hamburg in 1993, stayed away from tennis for two years; won Canadian Open, in 1995.

SEN, AMARTYA KUMAR (b. 1933): Distinguished Indian economist, the Lamont Professor of Philosophy and economics at Harvard University, Member of a World Bank advisory board. Known for his broad-ranging contribution to economic theory and development economics. Has explored the behavioural foundations of economic theory and enriched the traditional concepts of economic development.

SEN, MIHIR (b. 1930): First Indian to swim the English Channel. World record in long distance swimming.

SEN, MRINAL (b. 1923): Famous Indian film director. "Bhuvan Shome", "Khariz" (Cannes festival award winner).

SENN, AYRTON (1960-1994): Race driver of Brazil, one of only 7 drivers to win the world championship three times. Died in a highspeed crash during San Marino Grand Prix.

SETHI, GEET (b. 1962): This unseeded player from India became the king of the world billiards championship in 1985. The youngest ever to wear the crown in his maiden appearance. Winner of Gold Flake championship, 1992 & '93.

SHAKESPEARE, WILLIAM (1564-1616): Greatest dramatist and poet of England. b. Stratford-on-Avon. *Romeo and Juliet, Julius Caesar, Hamlet, Othello, Macbeth, The Tempest*, etc. Unbeatable in mastery of language, understanding of character, dramatic perception, and skill in the use of ritual.

SHAKUNTALA DEVI (b. 1939): Mathematical celebrity. A 'human computer' from Bangalore. Manifested an extraordinary love for numbers

at 3, became expert in complex mental arithmetic at 5.

SHANKAR (1902-1989): Indian cartoonist of fame. Known for *Shankar's Weekly*, the International Children's Art competition and the International Dolls Museum, all founded by him. Trustee, Children's Book Trust.

SHANKER, RAVI (b. 1920): International known Indian sitar maestro. Winner of many awards and honours. *My Life and My Music*.

SHARMA, RAKESH (b. 1954): The first Indian cosmonaut to go into space, aboard Soyuz T 11 for a rendezvous with Salyut-7 (1984).

SHASTRI, LAL BAHADUR (1904-66): Indian politician who succeeded Nehru as India's second Prime Minister (June 1964-Jan. 1966). Minister, Cabinet Minister. A simple and selfless Gandhian. Died at Tashkent. Bharat Ratna (posthumous), 1966.

SHAW, GEORGE BERNARD (1856-1950): Irish dramatist and the greatest critic of his time who conquered England by his wit. His plays include *Man and Superman, Heartbreak House, Back to Methuselah, Saint Joan, The Apple Cart, Pygmalion*. Nobel prize, 1925.

SHELLEY, PERCY BYSSHE (1792-1822): English poet, renowned for his daring views. A passionate advocate of freedom. *Prometheus Unbound, Ode to the West Wind, The Skylark*.

SHERIDAN, RICHARD BRINSLEY (1759-1816): English playwright, a brilliant writer of comedies. *The Rivals, The School for Scandal, The Critic*.

SHIVAJI (1627-1680): The great Marathi leader who fought Mughal emperor Aurangzeb and established a Hindu state in Deccan. Crowned king in 1674. Great general and able ruler.

SHOLOKHOV, MIKHAIL (1905-84): A famous most Russian, realistic novelist. *The Quiet Sun*. Nobel prize, 1965.

SHORT, NIGEL (b. 1965): English Olympic champion.

SHOURIE, ARUN (b. 1943): Outstanding Indian journalist, recipient of 1982 Magsaysay award.

SINATRA, FRANK (b. 1915): (Francis Albert Sinatra) American singer, film actor. Singing in the bobbysoxers in 1940s. Has made over 100 albums and 58 feature films. Oscar for *From Here to Eternity* and lifetime achievement award from Grammy.

SINGH, BHAGAT (1907-1931): Indian patriot and revolutionary, hanged by British government for participation in the Lahore Conspiracy.

SINGH, CHARAN (1902-1987): Prime Minister of India July 1979-Jan. 1980. President of Lok Dal; Deputy Prime Minister during Indira Gandhi regime.



Shakespeare

SINGH, KHUSHWANT (b. 1915): Leading Indian journalist and writer, was editor of *Illustrated Weekly, National Herald, Hindustan Times*, etc. Member, Parliament. Regular columnist since 1969. *History of the Sikhs, Train to Pakistan, Indira Gandhi Returns, Punjab Tragedy*.

SINGH, VISWANATH RATAP (b. 1931): Prime Minister of India Dec. 1989 to Nov. 1990. Earlier, Union Minister, Parliament member, assembly member.

SINGH, ZAIL (b. 1916): President of India, 1982-87. A veteran freedom fighter; was minister (State and Central) and Chief Minister (Punjab).

SMITH, ADAM (1723-90): Scottish economist, known as the 'Father of Economics'. *Wealth of Nations*.

SNOW, CHARLES PERCY (1905-80): British writer and scientist, author of the essay *The Two Cultures and the Scientific Revolution*, and a series of novels *Strangers and Brothers*.

SOCRATES (470-399 B.C.): Greek philosopher, Plato's master, and intellectual leader who attracted many followers. In 399 B.C. he was charged with impiety and with corrupting the young, found guilty, and accordingly died by drinking hemlock.

SOLON (c. 638-558 B.C.): Athenian lawyer; one of the Seven Wise Men of Greece.

SOLZHENITSYN, ALEXANDER (b. 1918): Russian novelist, whose works were banned by the government. He was expelled from Soviet Union in 1974; returned home May '94. Nobel Prize, 1970. *Cancer Ward, The First Circle*.

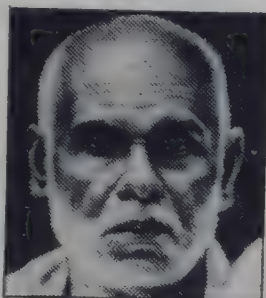
SOPHOCLES (495-406 B.C.): Athenian dramatic poet, ranking with Aeschylus and Euripides as one of the three greatest dramatists of classical antiquity. Wrote over a hundred plays including *Oedipus Tyrannus, Oedipus at Colonus, Antigone, Electra, Trachiniae, Ajax, Philoctetes*.

SOYINKA, WOLE (b. 1934): Nigerian dramatist, and probably Africa's most versatile author. First black African to get Nobel Prize for literature (1986). *The Interpreters, Death and King's Horseman, The Road, Kongi's Harvest*.

SPENDER, STEPHEN (1909-1995): English poet, critic, essayist. One of the prominent British writers of the 1930s.

PENSER, EDMUND (1552-99): English poet, ranking with Shakespeare and Milton. He is called 'the poet's poet'. *The Faerie Queene*.

PIELBERG, STEVEN (b. 1947): One of the most successful film directors. (Over two decades and 15 feature films). *Jaws* (1975) (which



Sri Narayana Guru

ch became the No. 1 money-grosser; *Close Encounters of the Third Kind* (1978), *Raiders of the Lost Ark* (1982), *E.T.—the Extra Terrestrial* (1983), *Jurassic Park* (1993)—the last has beaten all box-office records. *Schindler's List* won him Oscar for best director (1994) and 6 other awards.

SRI NARAYANA GURU (1855-1928): One of the most famous social reformers and religious leaders of India. Thinker and mystic who tried to improve the lot of backward classes. Spread the message of equality of men, irrespective of religion. Sri Narayana Dharma Paripalana Sangam formed in 1903.

SRINIVAS, UPPALAPU (b. 1970): Great mandolin player of India who began playing it at the age of six. The youngest to receive the title "Asthana Vidwan" (1990). Also, Senior Artist Award from Music Academy.

STALIN, JOSEPH (1879-1953): Soviet statesman who for nearly 30 years was leader of the Russian people. Became the outstanding figure after Lenin's death. General Secretary of CEC of USSR, 1924-41. He modernised agriculture on socialist lines by ruthless means. Introduced the famous Five Year Plans in 1929, which made Russia an industrial power.

STEPHENSON, GEORGE (1781-1848): English engineer; inventor of locomotive engine.

STEVENSON, ROBERT LOUIS (1850-94): Scottish author. *Treasure Island, Kidnapped, Dr. Jekyll and Mr. Hyde*.

STREEP, MERYL (b. 1949): A first-rank American film actress. Oscar, 1979. *Kramer Vs Kramer*.

STROHEIM, ERICH VON (1885-1957): Austrian director, writer and actor, an outstanding personality in international cinema. A brilliant pioneer of silent cinema. Directed *Greed, The Wedding March* and *Queen Kelly*.

SUBBULAKSHMI, MADURAI SHANMUGAVADIVU (b. 1916): Famous classical singer of India. Magsaysay award, 1974. Gave a special recital of devotional songs for the silver jubilee celebrations of UN in 1970.

SUBRAMANIAM, KA NA (1912-88): Renowned Tamil poet and novelist of this century. *Oru Nal, Poi Thevu, Rantu Penkal*.

SUDARSAN, Prof. ENNACKAL CHANDY GEORGE (b. 1931): Indian physicist famous for his particle theory on 'tachyons', faster than light. Advanced the theory of V-A (left handed) current, one of the four fundamental forces of nature. Worked in Rochester, now in Texas. He was director of the Madras Institute of Mathematical Studies for some time.

SULLIVAN, LOUIS (1856-1924): American architect; pioneered steel-frame construction; coined dictum 'Form follows Function'.

SUN YAT-SEN (1867-1925): Leader of the revolutionary movement that overthrew

monarchy in China in 1911. Became President.

SUU KYI, AUNG SAN (b.1945): The 1991 Nobel Peace laureate from Burma and opposition leader under house arrest by the military junta for six years until July 10, 1995. World's most famous prisoner of conscience and champion of democracy. Founded Myanmar's National League for Democracy.

SVETLANA, SAVITSKAYA (b. 1949): Soviet cosmonaut; the first woman to walk in space; the only woman to have made two space flights. Test pilot who mastered 20 types of aircraft which won her the title 'Miss Sensation'.

SWAMI, CHATTAMBI (1853-1924): (Srividya dhiraja Kunjan Pillai, later Sribalabhatarakeswaran). Indian visionary, scholar and social reformer. Vivekananda described him as 'a remarkable man' and Ulloor called him 'modern Sankaran'. Exerted great influence on Kerala's socio-cultural renaissance. Some regard Sri Narayana Guru, with whom he had close association, as his disciple.



Chattambi Swami

SWAMINATHAN, MANKOMBU SAMBA-SIVAN (b. 1925): Internationally known agricultural scientist of India. Was member, Planning Commission; Director General of International Rice Research Institute, Manila. Architect of the Green Revolution; won many awards including Magsaysay (1971).

SWIFT, JONATHAN (1667-1745): English satirist. *Gulliver's Travels*.

TAGORE, RABINDRANATH (1861-1941): Indian poet and philosopher who introduced Indian culture to the West and vice versa. Nobel prize, 1913 (first Asian recipient). Founded Shantiniketan which later became Viswabharati University. Wrote national anthems of India and Bangladesh. *Sonar Tari, Chaitali, Kalpana, Chitrangada, Gitanjali*.

TAMERLANE (TIMUR THE LAME) (1336-1405): A great warrior of Central Asia; ruler of Samarkand, he conquered Iran, Transcaucasia, Iraq, Armenia, and Georgia, and invaded India & Syria. One of the greatest campaigners in history.

TANDON, PURUSHOTTAM DAS (1882-1962): Prominent figure in the Indian freedom movement, Bharat Ratna 1961.

TATA, JAHANGIRJI RATANJI DADABHAI (b. 1904-1993): One of India's top industrialists. First pilot to qualify in India. Chairman, Air India. Bharat Ratna, 1992.

TENDULKAR, SACHIN (b. 1973): Indian cricketer. The wonder boy of Indian cricket. At 16

played his first Test in Karachi. Indian Cricketer of the Year twice. Arjuna award, 1995. The youngest (at 19) to score 1000 runs in test cricket.

TENNYSON ALFRED (1809-92): English poet-laureate. A master of language, his publication extended over 60 years, mirroring much of his age: *The Princess, Maud, Idylls of the King, Enoch Arden, In Memoriam*.

TENZING NORGAY (1914-1986): With Edmund Hillary, he was the first to climb the Everest in 1953.

TERESA, MOTHER (b.1910): Roman Catholic nun, born to Albanian parents in Yugoslavia, and baptized Agnes Gonxha Bojaxhi. Came to India and taught Geography from 1922 to 1948 at Calcutta. In 1946 she was given permission to work in Calcutta slums. Founded "Missionaries of Charity", devoted to working for destitutes. Became a citizen of India by naturalization in 1962. Her homes for the poor (about 570) are spread in about 125 countries. Nobel Peace prize, 1979. Also Magsaysay award (1962), Pope John XXIII Peace Prize (1971), Good Samaritan award (1971), John F. Kennedy International Award (1971), Jawaharlal Nehru Award (1972), Templeton Award (1972), Bharat Ratna (1980), Order of Merit (1983), Rajiv Gandhi Sadbhavana award (1993), and many others.

THACKERAY, WILLIAM MAKEPEACE (1811-63): English novelist. *Vanity Fair, Pendennis, Esmond, The Newcomes*.

THANT, SITHU U. (1909-74): Burmese diplomat; U.N. Secretary-General, 1962-1971.

THATCHER, MARGARET HILDA (b. 1925): British Prime Minister 1979-90; first woman head of govt. in modern Europe. Historic third successive election victory, June 1987. On Jan. 1988 the grocer's daughter became long serving P. M. since Asquith. Described as 'The Iron Lady'.

THOMAS, ST.: One of the 12 disciples of Christ who came to India in A.D. 52 and founded seven churches in Kerala.

THOREAU, HENRY DAVID (1817-60): American essayist, naturalist and iconoclast who rebelled against society and lived for a time in a solitary hut. *Walden, Civil Disobedience*.

TIKKOO, RAVI (b.1932): Shipping magnate and once the richest Indian in UK. Now back in India for a Rs. 500 crore investment.

TILAK, BAL GANGADHAR (LOKMAN) (1856-1920): Indian patriot and statesman. "Swaraj is my birthright", the revolutionary slogan. In Burma, as exile for 6 years. The British called him the 'Father of Indian unrest'. *Geetha, Hasyam*.

TIPPOO, SULTAN (c. 1750-99): Indian prince, sultan of Mysore. French-backed warrior against British. Defeated by Cornwallis. Killed when British stormed Seringapatam.

TITIAN (Tiziano Vecelli): (c. 1487-1576): Venetian painter. *Sacred and Profane Love*.

TITO (JOSIP BROZ) (1892-1980): Father of modern Yugoslavia. In 1941 he organised partisan forces against the Axis invaders, liberated his country, and carried through a communist revolution. Exponent of 'national communism'. First communist prime minister, 1945 and President, 1953. Followed an independent line for his country. Co-founder of Non-Aligned Movement.

TOLSTOY, LEO (1828-1910): Russian novelist and writer on ethics and religion. *War and Peace*, *Anna Karenina*, *Resurrection*, *The Death of Ivan Ilyich*, *Anna Karenina*, *The Death of Ivan Ilyich*, *The Death of Ivan Ilyich*, *The Death of Ivan Ilyich*.

TOYNBEE, ARNOLD (1889-1975): English historian. *A Study of History* in 10 volumes is an analysis of many civilisations.

TRAVOLTA, JOHN

(1954): A sought after actor after the success of *Pulp Fiction*. Has hit the 10 m. dollar mark.

TREVELYAN, GEORGE MACAULAY (1876-1929): English historian. *History of England*, *English Social History*.

TROTSKY, LEON (1879-1940): One of the leaders of the Bolshevik revolution in Russia; allied with the Party, and was expelled. Exile in Mexico, where he was assassinated.

TRUDEAU, PIERRE (b. 1919): Prime Minister of Canada-1968-79, 1980-84.

TRUMAN, HARRY F. (1884-1972): U.S. President, 1945-53. He took the decision to drop the first atom bomb.

TULSI DAS (1532-1623): Indian poet whose masterpiece *Ram Charit Manas* (the *Ramayana*) is revered by Hindus as the Bible is in the West.

TURNER III, TED (Robert Edward) (b. 1938): The man whose vision created CNN (Cable News Network) and one of the two most powerful men in the age of information. Married to Jane Fonda.

TUTU, DESMOND (b. 1931): South African anti-apartheid leader who advocated nonviolent resistance to apartheid. First black Anglican bishop of Cape Town. Nobel peace prize, 1984.

TWAIN, MARK (pseudonym of SAMUEL CLAYTON CLEMENS) (1835-1910): America's leading humorist who used his wit to comment on social, political and moral problems. *Tom Sawyer*, *Huckleberry Finn*, *Pudd'nhead Wilson*, *Innocents Abroad*.

USHA, P.T. (b. 1964): Indian athlete. The first Indian woman (and the fifth Indian) to

reach the final of an Olympic event by winning her 400 m hurdles semi-final. Missed a bronze medal by 1/100 of a second. Created new Asian Games records in all events she participated in X Asian Games, Seoul.

VAJAPAYEE, ATAL BIHARI (b. 1926): Indian politician, parliamentarian, orator. Foreign Minister, 1977-94. Founder-member, Jan Sangh, former President, Bharatiya Janata Party.

VAN GOGH, VINCENT (1853-90): Distinguished Dutch painter-the first of the great modern Expressionist painters. His life was one of pain and sorrow; committed suicide.

VATSYAYAN, SACHIDANANDA HIRANANDA (AGYERA) (1911-1987): Hindi writer, journalist. Jnanpith award, 1978 (*Kitni Navom Me Kitnibar*).

VATSYAYANA (5th Century A.D.): Sanskrit writer who wrote the famous 'Kamasutra' ('Art of Sex').

VENKATARAMAN, R. (b. 1910): President of India, 1987-92. Formerly Vice-President of India (1984-87), Union Minister (Defence, Finance).

VERNE, JULES (1825-1905): French writer of science fiction, *'Round the World in Eighty Days*, *Five Days in Balloon*, *Twenty Thousand Leagues Under The Sea*.

VESPUCCI, AMERIGO (1454-1512): Italian explorer, after whom America is named. Explored Venezuela.

VICTOR EMMANUEL II (1820-78): First king of Italy.

VICTORIA (1819-1901): Queen of Britain and Empress of India. The monarch with the longest reign in British history. Her reign saw industrial expansion, growing humanitarianism, literary output, and prolonged peace.

VIDYASAGAR, ISHWAR CHANDRA (1820-1891): Great Indian scholar and reformer. Fought for widow remarriage, higher education for women, and against child marriage.

VITTACHI VARINDRA TARZIE (1921-1993): Noted journalist and author (born in Sri Lanka) known as 'the newspaper doctor'. A campaigner for the poor and a witty critic of post-colonial rulers. Also became a top U.N. official. Helped establish Press Foundation of Asia. Magsaysay award, 1959.

VIRGIL (PUBLIUS VERGILIUS MARO) (70-19 B.C.): Roman epic poet. *The Aeneid*.

VISVESARAYYA, MOKSHAGUNDAM (1861-1962): One of the founders of modern India. Engineer, administrator, educationist and statesman. Was Dewan of Mysore. Bharat Ratna, 1955.

VIVEKANANDA, SWAMI (1863-1902): A saint philosopher who made India's greatness known to the world. Established Sri Ramakrishna Mission.



Tolstoy

VOLTAIRE (the assumed name of **FRANCOIS MARIE AROUET**) (1694-1778): French philosopher and writer, best remembered for his philosophical satire *Candide*. Challenged accepted beliefs and prepared the way for the French Revolution.

WADIA, ARDASEER CURSETJEE (1808-77): A distinguished mechanical and marine engineer who became the first Indian Fellow of the Royal Society, London, at the age of 33.

WAGNER, RICHARD (1813-83): German composer, who made revolutionary changes in the structure of opera.

WALDHEIM, KURT (b. 1918): Austrian diplomat, President of Austria, 1986. Secretary-General of the United Nations, 1972-81.

WALESA, LECH (b. 1943): President of Poland (1990). An electrician at the Lenin Shipyard in Gdansk in 1970, ten years later he led the strikers at the same place as leader of 'Solidarity'. Nobel peace prize, 1983.

WALLACE, EDGAR (1875-1932): English novelist and playwright; wrote detective thrillers. *The Four Just Men*, *The Ringer*.

WALTON, ERNEST (1904-1995): Irish scientist, who along with John Cockcroft, split the atom artificially for the first time, thus ushering in the nuclear age in 1932. Won 1951 Nobel Prize (Physics) with Cockcroft.

WALTON, SAM (1918-92): One of the world's leading departmental-store-retail business magnates. Owner of Wal-Mart stores chain. Annual turnout \$44m. 40m. customers visit his shops in a week.

WASHINGTON, GEORGE (1732-99): First U.S. President, 1789-97.

WATT, JAMES (1736-1819): Scottish engineer and inventor after whom the watt as a unit of power is named. He made important improvements to Newcomen's steam-engine and brought it to a point of practical value.

WEBSTER, NOAH (1758-1843): American lexicographer. *American dictionary of the English Language*.

WELLS, HERBERT GEORGE (1866-1946): English author. *The Time Machine*, *Kipps*, *The Outline of History*, *The Shape of Things to come*, *A Short History of The World*.

WILDE, OSCAR (1854-1900): Irish author and dramatist, remembered as the greatest conversational wit of his age. *Lady Windermere's Fan*., *A Woman of No Importance*, *An Ideal Husband*, *The Importance of Being Earnest*.

WILSON, Sir HAROLD (1916-1995): British statesman, PM 1964-66, 1966-70, 1974-76.

WILSON, WOODROW (1856-1924): U.S. President, 1913-21.

WINFREY, OPRAH (b.1954): American TV talkshow host. First woman to top the *Forbes* ma-

gazine list of entertainment millionaires. Her show is seen in over 100 countries including India.

WODEHOUSE, PELHAM GRENVILLE (1881-1975): English humorous novelist; creator of the immortal butler, Jeeves.

WOOLF, VIRGINIA (1882-1941): English writer whose works develop the stream-of-consciousness technique. *To the Lighthouse*, *Mrs Dalloway*, *The Waves*, *Orlando*.

WORDSWORTH, WILLIAM (1770-1850): English poet, interpreter of nature in her moods. Poet Laureate, 1843. *The Prelude*, *Sonnets*, *Ode on the Intimations of Immortality*.

WRIGHT, FRANK LLOYD (1869-1959): The greatest American architect of the 20th century. Gained fame for building the Imperial Hotel Tokyo that withstood the 1923 earthquake.

WRIGHT, ORVILLE (1871-1948) and his brother **WILBUR** (1867-1912): American inventors and pioneers in aviation, the first man to design and fly a powered, man-carrying airplane.

XERXES (c. 519-465 B.C.): King of Persia 485 to 465 B.C.; a great commander; assassinated.

YADAV, SANTOSH (b. 1969): An Indian Border Police officer from Haryana who climbed the Everest in May 1992 and May, 1993 thereby becoming the only woman in the world to have climbed the peak twice.

YASHPAL, Dr. (b.1927): Veteran Indian scientist and former UGC Chairman.

YEATS, WILLIAM BUTLER (1865-1933): Irish lyric poet and playwright. *The Countess Cathleen*, *The Hour Glass*, *Deidre*, *The Falling of the Leaves*, *The Wind Among the Reeds*.

YELTSIN, BORIS (b. 1931): President of Russia, June 1991. The first leader of Russia ever to be chosen in a popular vote. He had been serving as Chairman of the Russian parliament and had pressed for democratic and economic reforms at a faster pace than Soviet President Gorbachev had allowed. The world record for votes secured is held by Yeltsin (47,26,11,83%—in Moscow parliamentary election, 1991).

YEW, LEE KUAN (b.1923): Singaporean statesman. PM for 31 years, 1959-90.

ZEPPELIN, FERDINAND (1838-1917): German inventor who built the first rigid-frame motor-driven airship (1900); subsequent models named after him.

ZOLA, EMILE (1840-1902): French novelist. *L'Assommoir*, *Nana*, *Germinal*.

ZOROASTER (ZARATHUSTRA) (6th c. B.C.): Persian founder of the Parsee religion; was a monotheist, and saw the world as a struggle between good and evil.

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Peace at a distance. A scene from the Kashmir valley



Mastermind. Mast Gul, the ISI protege, the mind behind the burning of the town and the shrine



Before (top) and After (below)

Charar-e-Sherief, built in 1460 in remembrance of the sufi saint Sheikh Noorudin Noorani in Kashmir; gutted in the fire



Ghost town. Militants' fury guts 1000 houses in the Charar township



Silenced by a suicide bomber. Former Punjab CM Beant Singh was killed in Chandigarh



All didn't end well. Mayawati with L.K. Advani. UP's BSP government collapsed when BJP withdrew support



Dissidents. Arjun Singh and N.D. Tiwari revolted against Rao's leadership



Change of guards in Maharashtra. Manohar Joshi and Gopinath Munde with their wives. The saffron alliance that dethroned Congress, sending shock waves in India's commercial



Kobe earthquake
Calamity that killed 380 people in Japan



When tragedy struck. Flood waters seep into the Coal India's Gaslitand mine killing 73 miners near Dhanbad

Bihar Chief Minister
Laloo Prasad Yadav
taking a look at the
rescue operations in
the coal mines.

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Husain's magnificent obsession

Madhuri Dixit with M. F. Husain. After Indira Gandhi and Mother Teresa, Madhuri has caught his fancy. They have formed a company - Madhuri-McRuit Creations - a series of exhibitions and a movie (to be directed by the painter, starring the actress) are planned.

Top left: Madhuri as Nautanki Top right: Menaka and Vishwamitra
Below: Madhuri as Menaka



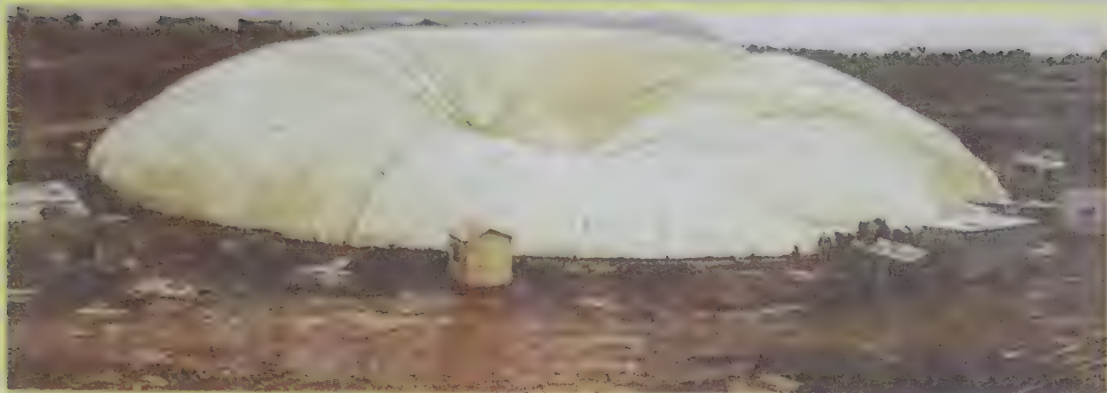
For a nuclear-free world

France at the end of its self-imposed moratorium on nuclear testing begins a series of tests at Mururoa islands calling world-wide protests.

Top

Greenpeace ship Rainbow Warrior II violating the exclusive zone.

Women Power
Beijing Women's Conference



Power failure. Enron Power project, Maharashtra. The first of the mega power projects in the western front nipped in the bud by allegations of corruption- now being renegotiated



A 62-day inferno. The blowout at ONGC Pasalarpudi drill-site in Andhra Pradesh, was controlled by indigenous technology



The Good Earth, a great cause to fight for
 'Chipko' leader Sundarlal Bahuguna ends the 49 day fast demanding scientific review of Tehri dam being built in a seismically active zone



Most opulent marriage of the year
 J. Sudhakaran (foster son of Tamil Nadu
 Jayalalitha) and N. Satyalakshmi



Maiden wicket. Sachin and Anjali



The most eligible bachelor weds
 Imran and Hikka
 (nee Jamima)

Grand daughter's grand marriage
 V. Srinivas and
 Satvasree with Rao





The agony is over. Sanjay Dutt, jailed under TADA in the Bombay blast case was released on bail



Dilwale Dulhania Le Jayenge. Close on heels of *Hum Aapke Hain Kaun*, came another Bollywood hit starring Kajol and Shah Rukh



Amitabh Bachchan

Now a corporation, Bachchan announced his comeback



Debashree Roy

Best Actress of the year
Unishe April
(Bengali film)



The most controversial film of the year

Manisha Koirala and Arvind Swamy in

GLIMPSES '95



Heights of glory

Garry Kasparov beats the challenger Vishwanathan Anand in the PCA Intel World Chess Championship



Goodbye to tennis

Pete Sampras ends the tournament with the racket without the Wimbledon Tournament



81 IMPGES '95



Sweet victory

Sri Lanka takes home the 1995 Sharjah Cup beating West Indies



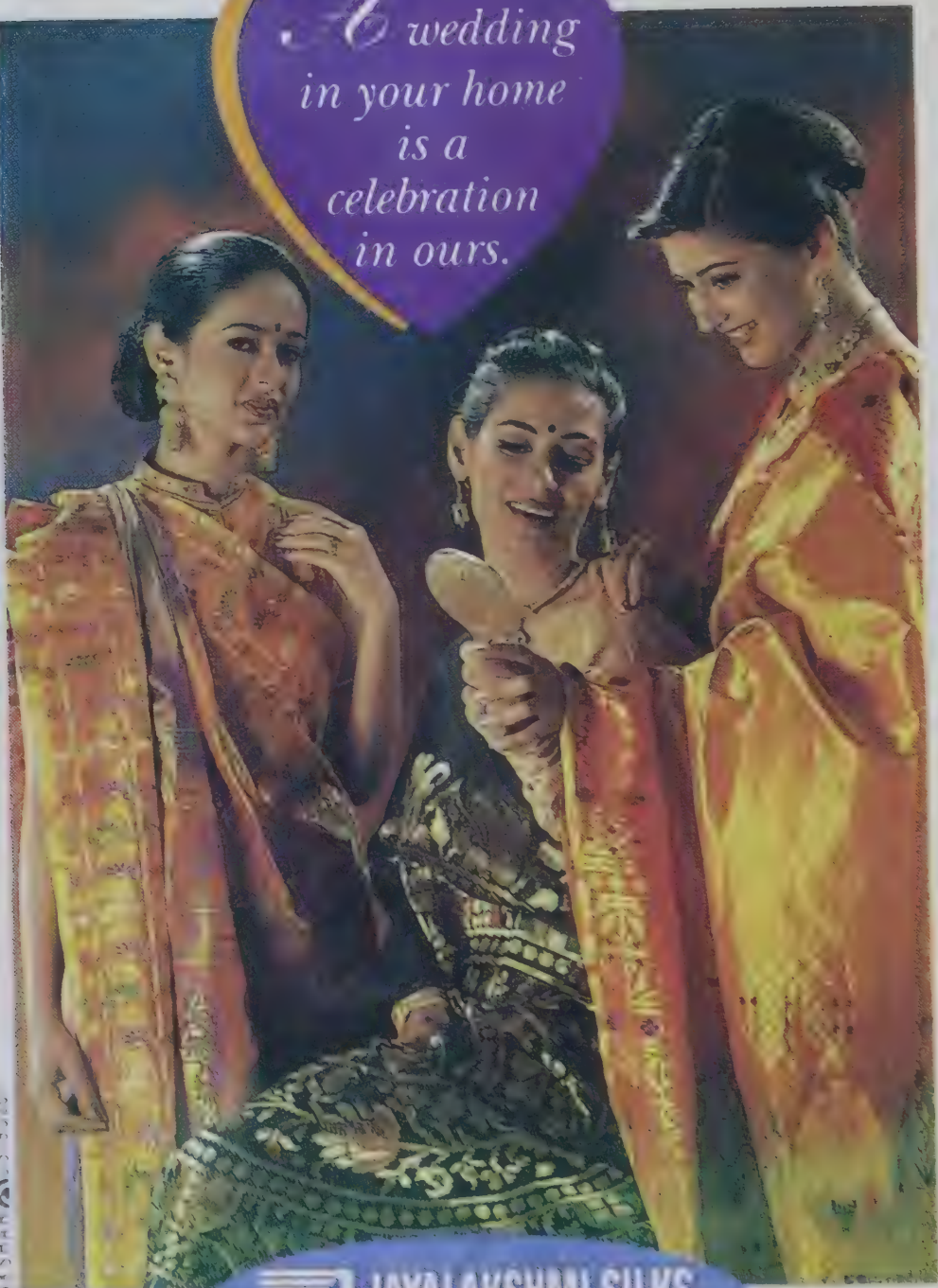
Perfect Fifteen

Mo Huilan, the 15 year-old strikes gold in the Sabae World Gymnastics Championship, Japan

Air Jordan a.k.a. Michael Jordan

As the highest earning athlete for the fourth consecutive year (1995) earned a whopping \$ 43.9 million in endorsements and royalty payments

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is a
celebration
in ours.*



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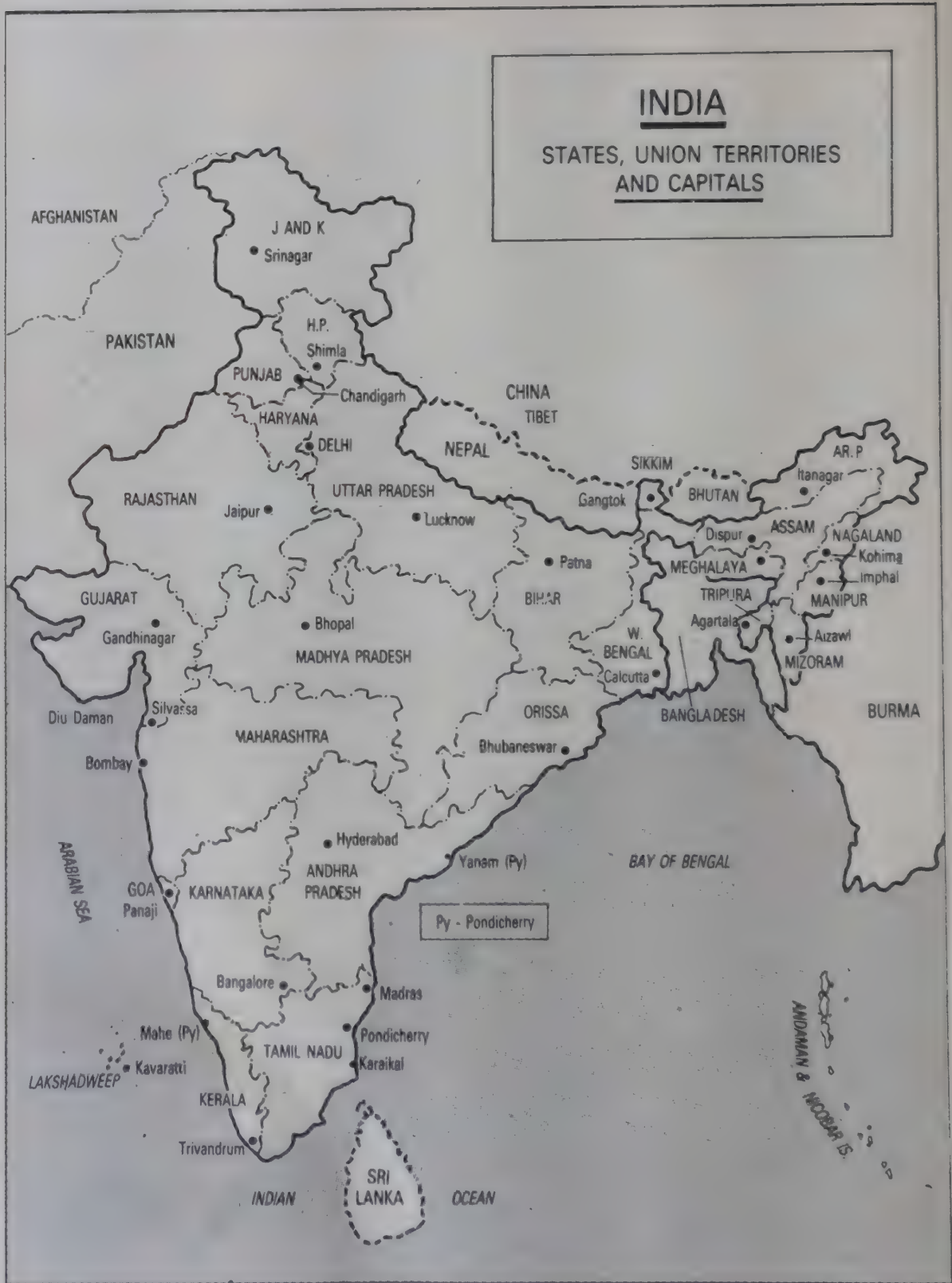
PART FOUR



INDIA

AND THE

STATES



The Country

India occupies a strategic position in Asia, looking across the seas to Arabia and Africa on the West and to Burma, Malaysia and the Indonesian Archipelago on the East. Geographically, the Himalayan ranges keeps India apart from the rest of Asia.

The fertility of the Indo-Gangetic belt, however, had proved to be such an irresistible magnet that hordes of people pressed into India through the mountain passes from ancient times.

India lies to the north of the equator between 8; 4' and 37; 6' north latitude and 68; 7' and 97; 25' east longitude. It is bounded on the south west by the Arabian Sea and on the south east by the Bay of Bengal. On the north, north east and north west lie the Himalayan ranges. The southern tip, Kanyakumari is washed by the Indian Ocean.

India measures 3214 km from north to south

and 2933 km from east to west with a total land area of 3,287,263 sq km. It has a land frontier of 15,200 km and a coastline of 7516.5 km. Andaman and Nicobar islands in the Bay of Bengal and Lakshadweep in the Arabian Sea are parts of India.

India shares its political borders with Pakistan and Afghanistan on the west and Bangladesh and Burma on the east. The northern boundary is made up of the Sinkiang province of China, Tibet, Nepal and Bhutan.

India has seven major physiographic regions:

(1) Northern Mountains including the Himalayas and the mountain ranges in the north-east.

(2) The Indo-Gangetic plain,

(3) Central Highlands,

(4) Peninsular plateau,

(5) East Coast,

(6) West Coast,

India 1995

Capital	: New Delhi
Area	: 3 287 263 sq km
Population (1995)	: 935.7 m.
Population (1991 Census)	: 846.3 m.
Male	: 439.2
Female	: 407.1
Population Growth Rate	: 1.9% ('90-95)
Absolute Increase ('81-'91)	: 162.97 m.
Decadal Growth ('81-'91)	: 23.50%
Urban population (1994)	: 26%
Rural population	: 74%
Density	: 273/sq km
Literacy	: 52.11%
Male	: 64.13%
Female	: 39.29%
Sex ratio (female per 1000 male)	: 927
Fertility Rate ('90-95)	: 3.9 (av. no. of children)
Family Planning users	: 43% ('93)
GNP per capita	: \$ 350
GDP growth rate	: 5.3%
National income (at current prices)	: Rs 473,246 crore (1991-'92)
GDP at factor cost (at current prices)	: Rs 707,145 crores ♦
Gross Domestic Capital Formation (as % of GDP ♦)	: 20.4

Gross Domestic Savings (as % of GDP ♦)	: 20.2
per capita NNP (at current prices) ♦	: Rs 6929
Inflation rate	: 8.23% (Oct. 14, '95)
External Debt (Mar. 1995)	: US \$95,321 million
Net market borrowing - Central Govt. (95-96-Bgt. Est.)	: Rs 27,087 crores
('94-95)	: Rs 20,074 crores
State Govt. ('94-95)	: Rs 5,123 crores
India's total exports (94-95)	: US \$26,223 m. (prov.)
India's total imports (94-95)	: US \$28,251 m. (prov.)

States : 25
Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

Union Territories : 6
Andaman & Nicobar Islands, Chandigarh, Dadra Nager Haveli, Daman and Diu, Lakshadweep and Pondicherry.

National Capital Territory : 1 Delhi

♦ (1993-94)

(7) Bordering seas and islands.
All the major land forms, hills, mountains, plateaus and plains, are well represented in India. Much of the land surface of India has developed a plateau character. There are extensive plains either flat or rolling at levels ranging from 300 to 900 metres, dotted with conical or rounded hills or traversed by flat-topped ridges. These are mostly in the central highlands and Deccan peninsular plateau.

- India has seven principal mountain ranges:
- (1) the Himalayas,
 - (2) the Patkai and other ranges bordering India in the north and north east,
 - (3) the Vindhya, which separate the Indo-Gangetic plain from the Deccan Plateau,
 - (4) the Satpura,
 - (5) the Aravalli,
 - (6) the Sahyadri, which covers the eastern fringe of the West Coast plains and
 - (7) the Eastern Ghats, irregularly scattered on the East Coast and forming the boundary of the East Coast plains.

Himalayas, the highest mountain-system in the world, is also one of the world's youngest mountain ranges. It extends practically uninterrupted for a distance of some 2500 km and covers an area of about 500,000 sq km. It contains the world's highest mountain peak, *Everest* and some ten peaks rising above 7,500 m. It appears to have risen as a result of a collision between the drifting Indian (peninsular) plate and the Tibetan plate of South Asia about 50 million years ago. The Himalayas reached their present heights much later.

Patkai and allied mountain ranges run along the Indo-Bangladesh-Burma border and may collectively be called *Purvachal* or eastern mountains. These ranges forming an arc must have come into existence along with the Himalayas.

Aravalli range in north-western India is one of the oldest mountain systems in the world. The present Aravalli range is only a remnant of the gigantic system that existed in prehistoric times with several of its summits rising above the snow line and nourishing glaciers of stupendous magnitude which in turn fed many great rivers.

Vindhyan range traverses nearly the whole width of Peninsular India a distance of about 1050 km with an average elevation of some 300 metres. The Vindhyan range appears to have been formed by the weathered products of the ancient Aravalli ranges.

Satpura range, another ancient mountain system, extends for a distance of 900 km with many of its peaks rising above 1000 metres. It is triangular in shape, with its apex at Ratnapuri and two sides running parallel to the Narmada and Tapi rivers.

Social and Economic indicators

Crude Birth Rate (per 1000 people):	21 ('95)
Crude Death Rate (per 1000 people):	9.8 ('95)
Infant Mortality Rate (1994)	: 72
Life Expectancy (1994)	: 62.8
Calorie Intake (av. per person/day)	: 2,229
Dowry deaths per day	: 17
Population above 60 years age	: 6.1%
Smokers (WHO—1990) Male	: 53%
Female	: 3%
Total Road ('90-91)	: 2.04 m km
National Highway ('90-91)	: 0.04 m km
Post Offices (March '92)	: 1,50,346
Density of Post Office (Mar. '92)	: 1/2:19 km ²

per capita consumption of —	
gold	: 0.4 grams
milk	: 107 grams
meat	: 2 kg ('90)
steel	: 20 kg ('87)
cement	: 53 kg ('90)
paper	: 3 kg ('89)
People per doctor	: 2,272
People per TV	: 31.1

per capita availability of —	
Cereals (per day) ('94)	: 436.4 gms
Pulses (per day) ('94)	: 37.8 gms
Edible oil	: 5.9 kg ♦
Vanaspati	: 1.0 kg ♦
Sugar	: 13.6 kg ♦
Cotton	: 15.6 m ♦
Tea ('91-92)	: 621 gms
Coffee	: 57 gms ♦
Electricity	: 48.7 KWH
Telephone	: 0.01

♦(1992-93)

Sahyadri, or Western Ghats, with an average height of 1200 metres, is about 1600 km long and runs along the western border of the Deccan Plateau, from the mouth of the river Tapi to Cape Comorin (Kanyakumari), the southernmost point of India. It overlooks the Arabian Sea, and catches the full force of the monsoon winds, thus precipitating heavy rains on the West Coast.

Eastern Ghats, bordering the East Coast of India, is cut up by the powerful rivers into discontinuous blocks of mountains. In its northern parts between the Godavari and Mahanadi rivers it rises to above 1000 metres.

There are three main watersheds in India. (1) Himalayan range with its Karakoram branch in the north, (2) Vindhyan and Satpura ranges in Central India and (3) Sahyadri or Western Ghats

the West Coast. All the major rivers of India originate in one or the other of these waterheds.

The main rivers of the Himalayan group are the *Indus*, the *Ganga* and the *Brahmaputra*. These rivers are both snow-fed and rain-fed and have therefore continuous flow throughout the year. Himalayan rivers discharge about 70 per cent of their inflow into the sea. This includes about 5 per cent from central Indian rivers. They join the Ganga and drain into the Bay of Bengal.

The *Indus*, which the Aryans called the *Sindhu*, has lent its name to India. Its valleys on both sides have been the seat of a civilization, that is not only older but also superior in many respects to the fabled civilizations of Sumeria and Egypt. This historic river has five major tributaries the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej. These in turn have inspired the name Punjab (punj = five & ab = river), the Land of Five Rivers. The Indus rises from Mount Kailas in Tibet and traverses many miles through the Himalayas before it is joined by its tributaries in the Punjab. Thereafter it flows into Sind (Pakistan) to fall into the Arabian Sea.

The *Ganga*, famous alike in legend and history, is considered the most sacred river by the Hindus. It covers, what is called the heartland of

India, which was the main centre of the ancient Aryan culture. It rises near the glacier, Gangotri in the Himalayas and flows through Uttar Pradesh, Bihar and Bengal to fall into the Bay of Bengal. Ganga and its tributaries Jamuna, Gomti, Garga, Sarda, Gandak, Chambal, Son and Kosi, spread out like a fan in the plain of India thus forming the largest river basin in India, with an area, one quarter of the total area of India.

The *Brahmaputra*, rising in Western Tibet, flows for some 1300 km through the Himalayas, then turns south-west and then south, joining the easternmost branch of the Ganga the Padma and empties together with Ganga into the Bay of Bengal.

The rivers of Deccan denuding their beds for long geological ages have developed flat valleys with low gradients. The major Deccan rivers are the *Godavari*, the *Krishna*, the *Cauvery*, the *Pennar*, the *Mahanadi*, the *Damodar*, the *Sharavati*, the *Netravati*, the *Bharatapuzha*, the *Periyar*, the *Pamba*, the *Narmada* and the *Tapti*. These rivers are entirely rain-fed with the result that many of them shrink into rivulets during the hot season. The Deccan rivers contribute about 30 per cent of the total outflow in India. Of this, the rivers that flow from west to east account for 20 per cent and those from east to west about 10 per cent.

India's national insignia

The State Emblem of India is an adaptation from the Sarnath Lion Capital of Asoka as preserved in the Sarnath Museum. The Government adopted the emblem on 26th January, 1950, the day when India became a Republic. In the original of Sarnath Capital, there are four lions, standing back to back, mounted on an abacus with frieze carrying sculpture in high relief of an elephant, a galloping horse, a bull and a lion separated by intervening wheels (chakras) over a bell-shaped lotus. Carved out of a single block of polished sandstone, the Capital is known by the Wheel of the Law (Dharma Chakra).



सत्यमेव जयते

State Emblem

adopted by the Government only three lions are visible, the fourth being hidden from view. The wheel appears in relief in the centre of the abacus with a bull on the right and a horse on the left and the outlines of the other wheels on the extreme right and left. The bell-shaped lotus has been omitted. The words, *Satyameva Jayate* from the Mundaka Upanishad meaning Truth alone triumphs, are inscribed below the abacus in Devanagari script.

Rabindranath Tagore's song *Jana-gana-mana* was adopted by the Constituent Assembly as the National Anthem of India on 24th Jan. 1950. The first stanza (out of 5 stanzas) of the song forms the **National Anthem**.

The following is Tagore's English rendering of the stanza:

Thou art the ruler of the minds of all people,
Dispenser of India's destiny.

Thy name rouses the hearts of the Punjab,
Sind, Gujarat and Maratha,

Of the Dravid and Orissa and Bengal.

It echoes in the hills of the Vindhya and Himalayas, mingles in the music of the Jamuna

and the Ganges and is chanted by the waves of the Indian Sea.

They pray for the blessings and sing thy praise.

The saving of all people waits in thy hand,

Thou dispenser of India's destiny,

Victory, victory, victory to thee.

National Song : The song *Vande Mataram* composed by Bankimchandra Chatterji has an equal status with *Jana-gana-mana*.

The **National Flag** is a horizontal tri-colour of deep saffron (Kesari) at the top, white in the middle and dark green at the bottom in equal proportion. The ratio of the width of the flag to its length is two to three. In the centre of white band is a wheel, in navy blue. Its design is that of the wheel (Chakra) which appears on the abacus of the Sarnath Lion Capital of Asoka. Its diameter approximates the width of the white band. It has 24 spokes.

The design of the National Flag was adopted by the Constituent Assembly of India on 22nd July, 1947. Its use and display are regulated by a code.

National Calendar At the time of independence, the Govt. of India followed the Gregorian calendar based on the Christian era.

The National Government adopted the rec-

National Anthem

Jana-gana-mana-adhinayaka

jaya he

Bharata-bhagya-vidhata

Punjaba-Sindhu-Gujarata-Ma

ratha-

Dravida-Utkala-Banga

Vindhya-Himachala-Yamuna-

Ganga

Uchchhala-Jaladhi-taranga

Tava Subha name jage,

Tava subha asisa mage,

Gahe tava jaya-gatha.

Jana-gana-mangala-dayaka,

jaya he

Bharata-bhagya-vidhata

Jaya he, jaya he, jaya he,

Jaya jaya jaya, jaya he.

ommendation of the Calendar Reform Committee that the Saka era be adopted as the basis of the National Calendar. The Saka year has the normal 365 days and begins with Chaitra as its first month. The days of the Saka calendar have a permanent correspondence with the dates of the Gregorian Calendar, Chaitra 1 falling on March 22 in a normal year and on March 21 in a Leap Year. The National Calendar commenced on Chaitra 1 Saka, 1879 corresponding to March 22, 1957 A.D.

The months of the National Calendar, with their days and the dates of the Gregorian Calendar corresponding to the first day of the Saka month are given below:

Saka & Gregorian Calendars

1 Chaitra 30/31 days	March 22/23
1 Vaishaka 31	April 21
1 Jyaishta 31	May 22
1 Asadha 31	June 22
1 Sravana 31	July 23
1 Bhadra 31	Aug. 23
1 Asvina 30	Sept. 23
1 Kartika 30	Oct. 23
1 Agrahayana 30	Nov. 22
1 Pausa 30	Dec. 22
1 Magha 30	Jan. 21
1 Phalguna 30	Feb. 20

National Animal: Tiger; **National Flower:** Lotus; **National Bird:** Peacock.

The People

The people of India are largely the descendants of immigrants from across the Himalayas. It is still debated whether any native race evolved on Indian soil.

We know that the species known as *Ramapithecus* was found in the Siwalik foothills of the north-western Himalayas. This species believed to be the first in the line of *hominids* (human family) lived some 14 million years ago. Recent researches have shown that a species resembling the *Australopithecus* lived in India some 2 million years ago. Even this discovery leaves an evolutionary gap of as much as 12 million years since *Ramapithecus*.

Very little research has been done regarding the ethnic origins of the Indian population. Perhaps it is of little import now. The fact is that the Indian population is polygenetic and is a confusing mixture of various racial strains. Few, if any, can claim to belong to any particular stock. Nevertheless, many Indians pride themselves on their Aryan descent.

The observations of Natwar Singh, minister, historian, are relevant in this context. Say Singh, The unpalatable truth is, that for a vast number of people in north India, immaculate ancestry is a mirage. He is a brave man, who can with certitude prove his Aryan or Scythian

escent. He, that has traced his birth to a mythological ancestor, has done so, to draw attention away from the intervening generations.*

We are giving below descriptions of the various races in India according to the classical pattern.

According to Dr. B. S. Guha, the population of India is derived from 6 main ethnic groups: 1. Negrito, 2. Proto-Australoids or Austrics, 3. Mongoloids, 4. Mediterranean or Dravidian, 5. Western Brachycephals and 6. Nordic Aryans.

Brachycephalic (broad headed) Negroids from Africa were the oldest people to have come to India. These people are now found only in patches among the hill tribes of south India (*Australoids, Kodars, Paniyans and Kurumbas*) on the mainland. But they survive in the Andaman Islands, where they have retained their language. They are an inconsequential element in the population of India.

Proto-Australoids or Austrics were a race of people, with wavy hair plentifully distributed over their brown bodies, long heads with low foreheads and prominent eyeridges, noses with wide and broad roots, thick jaws, large palates and teeth and small chins.

The Austrics of India represent a race of medium height, dark (and in some cases black) complexion with long heads and rather flat noses but otherwise of regular features. Miscegenation with the earlier Negroids may be the reason for the dark or black pigmentation of the skin and flat noses. Austric tribes spread over the whole of India and then pass on to Burma, Malaya and the islands of South East Asia. The Austrics form the bedrock of the people.

The Austrics laid the foundation of Indian civilization. They cultivated rice and vegetables and made sugar from sugarcane. Their language has survived in the Kol or Munda speech (*Mundari*) current in Eastern and Central India. Dravidians comprise all the three sub-types, i.e. Proto-Mediterranean, the true Mediterranean and Oriental Mediterranean. They appear to be people of the same stock as the peoples of Asia Minor and Crete and the pre-Hellenic Aegeans of Greece. They are reputed to have built up the early civilization of the Indus Valley, whose

remains have been found at Mohenjo-daro and Harappa and other Indus cities. The Dravidians must have spread to the whole of India, supplanting Austrics and Negritos alike.

Mongoloids of various types are confined to the north-eastern fringes of India, in Assam, Nagaland, Mizo, Garo and Jainti Hills. Generally, they are people of yellow complexion, oblique eyes, high cheekbones, sparse hair and medium height.

Nordic Aryans who migrated to India were a branch of Indo-Iranians, who had originally left their homes in Central Asia, some 5000 years ago, and had settled in Mesopotamia for some centuries. The Aryans must have come into India between 2000 and 1500 B.C. Their first home in India was western and northern Punjab, from where they spread to the Valley of the Ganga and beyond. The Aryans, coming into India, encountered the highly civilized Indus Valley people who had big towns, with fortifications and brick structures and many of the amenities of a quite high city civilization. The Indus people were essentially a city people while the Aryans were a pastoral race.

Though it is not exactly known what happened to the Indus people or their civilization, it may be assumed that they intermingled with the incoming Aryans, who adopted the Indus culture as their own.

Stone Age and Goa

Research by two archaeologists of Karnataka University, Dharwad puts Goa on the Stone Age map of the world, which means the place was inhabited by humans more than a hundred thousand years ago.

Intensive archaeological survey in the forests of Goa along the foothills of Western Ghats by Luther D. Goudeller, a research student, and Dr. Ravi Korisetar, his guide and reader, department of history and archaeology have proved the evidence of human occupation of Goa during the Ice Age. Their efforts have yielded evidence of Stone Age tools like handaxes, cleavers, and choppers from various localities along the rivers of Dudhsagar and Mandai.

The discovery of Mesolithic tools has opened up new vistas of research in archaeology. These tools are believed to be ten thousand years old, having their origin in 3000 BC. In India, the earliest evidence of Stone Age dates back to about three hundred thousand years ago and are in sites situated in Rajasthan, Gujarat and Karnataka.

K. Natwar Singh: *Maharaj Suraj Mahal* (1707-63)

see Andaman & Nicobar Island, infra.
Gazetteer of India.

The term *Dravidian* is derived from the pre-Hellenic citizens of Asia Minor who called themselves *Trmmili*, which the Greeks wrote as *Temilai*. *Temilai* became *Dravidia*. *Dravidia* evolved itself in two ways: (1) In the south among the Dravidians, the process was *dravidia*—*Tamiz*—*Tamiz* (modern Tamil), (2) In the north, among the Aryans, *dravidia*—*dramila*—*dravida* (Dravidian).

The Population

According to 1991 census, India has a population of 846.3 million (439.2 m. males and 407.1 m. females). This includes the projected population of 7.72 m. of Jammu and Kashmir. The second most populous country, India is the home of 16 per cent of world's population. The country, however, accounts for 2.42 per cent of the total world area.

The population of India as recorded at each decennial census from 1901 has grown steadily

except during 1911-21 when there was a decrease. In absolute terms the country's population has increased by 162.97 million during the decade 1981-91. Growth rate of the population in the last decade has marked a decline compared to 1971-81. It marginally decreased from 24.66 per cent recorded in 1971-81 to 23.85 per cent during 1981-91.

During the decade, Andhra Pradesh, Arunachal Pradesh, Madhya Pradesh, Maharashtra,

Ranking of States and Union Territories by population size

Rank in 1991	State/Union Territory 1991	Population 1991 (in millions)	Per cent to total population of India		Rank in 1981
			1991	1981	
1	2	3	4	5	6
1	Uttar Pradesh	139.1	16.44	16.22	1
2	Bihar	86.4	10.21	10.23	2
3	Maharashtra	78.9	9.33	9.19	3
4	West Bengal	68.1	8.04	7.99	4
5	Andhra Pradesh	66.5	7.86	7.84	5
6	Madhya Pradesh	66.2	7.82	7.64	6
7	Tamil Nadu	55.9	6.60	7.08	7
8	Karnataka	45.0	5.31	5.43	8
9	Rajasthan	44.0	5.20	5.01	9
10	Gujarat	41.3	4.88	4.99	10
11	Orissa	31.7	3.74	3.86	11
12	Kerala	29.7	3.44	3.72	12
13	Assam	22.4	2.65	2.64	13
14	Punjab	20.3	2.40	2.46	14
15	Haryana	16.5	1.94	1.81	15
16	Delhi	9.4	1.11	0.94	16
17	Jammu & Kashmir	7.7	0.91	0.88	17
18	Himachal Pradesh	5.2	0.61	0.63	18
19	Tripura	2.8	0.33	0.30	19
20	Manipur	1.8	0.22	0.21	20
21	Meghalaya	1.8	0.21	0.19	21
22	Nagaland	1.2	0.14	0.15	22
23	Goa	1.2	0.14	0.11	23
24	Arunachal Pradesh	0.9	0.10	0.09	24
25	Pondicherry	0.8	0.09	0.09	25
26	Mizoram	0.7	0.08	0.07	26
27	Chandigarh	0.6	0.08	0.07	27
28	Sikkim	0.4	0.05	0.05	28
29	Andaman & Nicobar Islands	0.3	0.03	0.03	29
30	Dadra & Nagar Haveli	0.1	0.02	0.01	30
31	Daman & Diu	0.1	0.01	0.01	31
32	Lakshadweep	0.05	0.01	0.01	32

Source: Census of India 1991: Final Population Totals

Nagaland, Tripura, West Bengal, Damman and Diu, Lakshadweep and Pondicherry which account for one third of the country's population, recorded an increase in growth rate. Nagaland registered the highest growth rate of 56.08 per cent while Kerala the lowest 14.32 per cent..

Uttar Pradesh continued to be the largest state, population-wise with 16.44 per cent people of the country living there followed by Bihar with 10.21 per cent and Maharashtra with 9.33 per cent. West Bengal occupied fourth place accounting for 8.04 per cent of the country's population followed by Andhra Pradesh with 7.80 per cent.

Bombay metropolis continued to be the most populated city of the country with urban population of 12.60 million, Calcutta taking the second place having 11.02 million. Delhi ranks third with a population (urban) of 8.42 million followed by Madras 5.42 million.

Population Density Population density (the number of persons per square kilometre) has gone up from 230 in 1981 to 273 persons in 1991 (excluding Assam and Jammu & Kashmir). In 1901 it was 77 persons. Among the Union territories, Delhi has the highest density of 1,352 persons per sq. km. followed by Chandigarh (5,632). Lakshadweep which has the smallest population size is the fourth most densely populated area with a density of 1,616 persons per sq.km. Pondicherry ranks third (1,612) followed by Daman and Diu (907). Arunachal Pradesh is the most sparsely populated area of the country with 10 persons per sq.km.

Density of Population, 1901-1991

Census year	Density
1901	77
1911	82
1921	81
1931	90
1941	103
1951	117
1961	142
1971	177@
1981	216*
1991	267*

@ While working out the density of India, Jammu & Kashmir has been excluded as comparable figures of area and population are not available for that State.

* The density has been worked out on comparable data.

Source: Census of India 1991, Prov. Population Totals, p. 3

Heavily Populated Districts The 10 heavily populated districts of the country are

Literacy rate in States/UTs

Rank	State/Union Territory	Literacy rate
1	Kerala	89.81
2	Mizoram	82.27
3	Lakshadweep	81.78
4	Chandigarh	77.81
5	Goa	75.51
6	Delhi	75.29
7	Pondicherry	74.74
8	A & N Islands	73.02
9	Daman & Diu	71.20
10	Maharashtra	64.87
11	Himachal Pradesh	63.86
12	Tamil Nadu	62.66
13	Nagaland	61.65
15	Gujarat	61.29
16	Tripura	60.44
17	Manipur	59.89
18	Punjab	58.51
19	West Bengal	57.70
20	Sikkim	56.94
21	Karnataka	56.04
22	Haryana	55.85
23	Assam	52.89
24	Meghalaya	49.10
25	Orissa	49.09
26	Madhya Pradesh	44.20
27	Andhra Pradesh	44.09
28	Uttar Pradesh	41.60
29	Arunachal Pradesh	41.59
30	Dadra & Nagar Haveli	40.71
31	Rajasthan	38.55
32	Bihar	38.48

Source: Census of India 1991, Final Population Totals

Calcutta, Madras, Greater Bombay, Hyderabad, Delhi, Chandigarh, Mahe, Howrah, Kanpur City and Bangalore. All of them have density of above 2,000 persons per square kilometre and 5.01 per cent of the country's population lives in these districts. The average density of these districts is 6,888.

Sex Ratio, (the number of females per 1000 males) generally adverse to women in India has

also declined over the years except in 1981 when it slightly improved to 934 from 927. In 1991, there has been a fall by seven points to 927 per thousand males. But Kerala represented a different spectrum. The state has a higher number of females than males, 1,036 females for thousand males.

Sex Ratio (1901 -1991)

Census Year	Sex Ratio(Female per thousand Males)
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	934
1991	927

Source: Census of India, 1991 Final population totals

A sex ratio of 950 and above can be considered favourable to females in India. The states and union territories coming under this category besides Kerala and Himachal Pradesh (976), are Andhra Pradesh (972), Goa (967), Karnataka (960), Manipur (958), Orissa (971), Tamil Nadu (974), Dadra and Nagar Haveli (952), Daman and Diu (969) and Pondicherry (979). Chandigarh accounted for the lowest number of females per thousand males with 790.

Literacy

The final census results reveal that there has been an increase in literacy in the country. The literacy rate in the country (excluding Jammu and Kashmir) is 52.21 per cent (64.13 for males and 39.29 for females).

In the 1991 census, the question on literacy was canvassed only for population aged seven years and above, unlike earlier censuses which took into account population of five years and above for this purpose.

Kerala retained its position by being on top with a 89.81 per cent literacy rate in the country. Bihar stood at the bottom with a literacy rate of 38.48 per cent, with Rajasthan being close to it having 38.55 literacy percentage. Literacy among women was the lowest in Rajasthan with a percentage of 20.44. Male literacy was 54.99.

Rural and Urban Population In nine decades India's urban population rose from 26 m to 218 m. This forms 25.7% of the total population.

Towards Smaller

It is incredible but it is true. After four decades of family planning, we have a situation in which 59 per cent of Indian women in the reproductive age group are not using any contraceptive method. What is more, two out of every five women have not heard of the condom or the IUD.

Family health survey

These are among the findings revealed in the summary report 'National Family Health Survey (NFHS), 1992-93', released by the International Institute for Population Sciences, Bombay.

The NFHS, a nationally representative survey of ever-married women age 13-49, covered the population of 24 states and the National Capital Territory of Delhi to provide demographic and health data for interstate comparisons.

A total of 88,562 households were covered, and information was collected from 89,777 ever-married women age 13-49 (23,455 in urban areas and 66,322 in rural areas).

The survey was initiated by the Ministry of Health and Family Welfare, and funded USAID. The International Institute for Population Sciences was designed as the nodal agency for providing coordination and technical guidance to the NFHS.

The households covered in the survey included 500,492 residents. Twenty-six percent of the surveyed population live in urban areas. Fifty-seven percent of all females age 6 and above are illiterate. Sixty-seven percent of women in cities and towns are literate. Eighty-two percent of household heads are Hindus. Thirteen percent of household heads belong to scheduled castes and 9 percent are members of scheduled tribes.

3.4 children per woman

Fertility in India has been declining over time. The NFHS crude birth rate of 28.7 per 1,000 population for the period 1990-92 is 15 percent lower than the crude birth rate from the Sample Registration System 10 years earlier. The total fertility rate (TFR) is 3.4 children per woman. According to this measure, fertility in India is similar to that in Bangladesh, lower than in any other South Asian country except Sri Lanka and nearly one child lower than the TFR of all less developed countries combined (excluding China). The NFHS TFR is slightly lower than the

Families

TFR of 3.7 for 1990-92 estimated from the Sample Registration System maintained by the Office of the Registrar General, India. (See Table P.321 for earlier UN data))

The NFHS rural TFR (3.7 children per woman) is 50 percent higher than the urban TFR (2.7 children per woman).

Muslims have considerably higher fertility than any other religious group. Muslim women have a TFR of 4.4, which is 1.1 children higher than the TFR for Hindu women. The total fertility rate is below three children per woman for Christians, Sikhs and women from other religions (primarily Buddhists and Jains). Even after controlling for the level of education among women, religious differentials in fertility persist. Scheduled caste women have a higher TFR (3.9) than scheduled tribe women (3.6) and non-SC/ST women (3.3).

The survey found that childbearing in India is concentrated in the age group 15-29, which contributes more than three-fourths of total fertility. Current fertility is characterized by a substantial amount of early childbearing; 17 percent of total fertility is accounted for by births to women age 15-19.

Fertility in states

There are wide variations in fertility levels among the states. Fertility is considerably below the national average in South India and West India, where two states (Kerala and Goa) have reached below-replacement fertility. Goa has a unique pattern of childbearing, with very low fertility before age 25 as a result of a high average age at marriage and the late initiation of childbearing. At the other end of the spectrum, fertility is four children per woman or higher in Uttar Pradesh, Bihar, Haryana and Arunachal Pradesh, and the TFR also exceeds the national average in Madhya Pradesh, Meghalaya, Rajasthan and Assam. With a TFR of 4.8, Uttar Pradesh stands out as having especially high fertility.

Age at marriage

At the time of the survey, 30 percent of women age 15-19 were married and 95 percent of women age 25-29 were married. The proportion ever married at age 15-19 is lower in urban areas (22 percent) than in rural areas (46 percent). At age 15, more than 50 percent of women in Madhya Pradesh and Bihar are currently married, compared with only 3 percent of women in Goa.

The age at marriage increases sharply with the

education of women. Among women age 25-29, the median age at marriage rises from 15.3 years for illiterate women to 21.7 years for women who have completed high school, a difference of more than six years. Differences by religion also exist, with Christians and Sikhs marrying about four years later than Hindus. The median age at marriage for women age 25-49 is highest in Goa at 21.7 years and is around 15 years in Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar and Andhra Pradesh.

Do you want another child?

Slightly more than one-quarter of women say they do not want any more children, and 31 percent of women (or their husbands) are sterilized so that they cannot have any more children. These two groups together constitute 57 percent of all currently married women in the country. Overall, 78 percent of women want to either space their next birth or stop having children altogether.

Among women who want an additional child, far more express a preference that the next child be a son than a daughter. The preference for a son is widespread, but it is stronger in rural areas than in urban areas. The sex of the child does not matter to 24 percent of women.

According to the NFHS estimate, a further reduction in fertility of nearly 40 percent will be required to reach the government's long-term goal of replacement-level fertility by 2011-2016.

At present only 41 percent of currently married women use a contraceptive method, and contraceptive use is very limited below age 25. By far the most popular method of contraception is sterilization, which is used by 67 percent of current contraceptive users. There is very little attempt to space children. Only 6 percent of currently married women age 13-49 use a modern temporary method of contraception, and even among the younger women below age 25, the use of modern temporary methods is very limited.

Education is the key

Education is considered to be a catalyst of change, and its role in the process of national development cannot be overemphasized. Seventy-two percent of rural women in their childbearing years are illiterate. The education of women can play a major role in shaping the attitudes and behaviour of women.

Rural and Urban Population: 1901 - 1991

Census Year	Population (in million)		Percentage of total population	
	Rural	Urban	Rural	Urban
1901	243	26	89.2	10.8
1911	226	26	89.7	10.3
1921	223	28	88.8	11.2
1931	246	33	88.0	12.0
1941	275	44	86.1	13.9
1951	299	62	82.7	17.3
1961	360	79	82.0	18.0
1971	439	109	80.1	19.9
1981	524	159	76.7	23.3
1991	629	218	74.3	25.7

Source: Census of India 1991, Final Population Totals

Over 65% of India's urban population today live in class I towns (population over 100,000). Urban population as percentage to total population is 25.72.

Urbanisation by class of towns

Class of Town	Population '91 (in '000s)	Percent
I. 1,00,000 and above	1,38,802	65.20
II. 50,000 - 90,999	23,309	10.95
III. 20,000 - 49,999	28,079	13.19
IV. 10,000 - 19,999	16,531	7.77
V. 5,000 - 9,999	5,532	2.60
VI. Less than 5,000	614	0.29
All Classes	2,12,867	100.0

Source: Paper 2 of 1991, Prov. Population Totals

Raising women's status

A modification in the definition of sati (the former act or custom of Hindu widow sacrificing herself on her husband's funeral pyre) is among the recommendations made by the first annual report of the National Commission for Women (NCW) for the year 1992-93. It wants sati to include "putting an end, in whatever manner, to the life of the hapless women".

The report says that instead of "Commission of Sati (Prevention) Act", the words and brackets "Commission of Sati Murder (Prevention) Additional Provisions Act", shall be substituted.

Amendments by themselves don't help, the report says, unless the laws made to eradicate social evils are properly implemented in their true spirit. This applies to the provision in the Act for the appointment of dowry prohibition officers.

The report contains interesting information on gender ratios. Andhra Pradesh (105%) tops the states in percentage increase in rape cases in 1991 over 1987. Karnataka (7.9%)

has the lowest percentage. Gujarat recorded 59% and Bihar 9.1%.

The percentage increase in dowry deaths in 1991 over 1987 is the highest in West Bengal (459%), and lowest in Rajasthan (34%).

Other states: Assam-366%, Andhra Pradesh-319%, Bihar-110%, and Madhya Pradesh-92%.

Age-specific death rates of the rural population (1988) demonstrate that if women in the rural areas manage to survive the discriminatory practices against them, they can outlive men. The percentage of death among male children until 4 years of age is 35%, lower than the female death rate at 39%. If they survive, then be-

tween the age of 45 and 49 years, the male death rate is higher at 9.4% and the female death rate is lower at 6.7%.

Statistics on women agricultural labourers say they form 44% of the agricultural labour force. Women constitute 35% of the cultivators, five per cent of the household workers and 17% other workers.



Religious Communities

The major religious communities of India are Hindus, Muslims, Christians, Sikhs, Buddhists, Jains and Parsis. Of these the last two are numerically insignificant but they are important in other ways.

According to the religious census of 1991 there are 672.5 m Hindus, 95.2 m Muslims, 18.8 m Christians, 16.2 m Sikhs, 6.3 m Buddhists and 3.3 m Jains in India.

The population of all the six major religions (Hinduism, Islam, Christianity, Sikhism, Buddhism and Jainism) of India has increased but Jains have increased only marginally - by 4.42%. Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh together account for almost 90 per cent of the Jains. The population of Jains declined in nine States and one Union Territory (excluding Assam and Jammu and Kashmir).

The decadal population (between 1981—1991) increase was 156.8 m. Out of this 124.8 m are Hindus, 23.4 m Muslims, 2.6 m Christians, 1.7 m Buddhists, 1.3 m Sikhs and 0.2 m Jains. Again, the rates of increase of each of these communities are Hindus (22.78%), Muslims (32.76%), Christians (16.89%), Buddhists (35.98%) Sikhs (25.48%) and Jains (4.42%).

Of the 665.3 million people in India in 1981 (Assam not included), Hindus accounted for the largest community with 549.8 million members. Other communities were divided as follows:

Muslims: 75.5 m., Christians: 16.1 m, Sikhs: 13.1 m, Buddhists: 4.7 m, Jains: 3.2 m, Other Religions: 2,766,285, Religions not stated: 60,217.

The data of the 1981 census offers some other statistics also of interest to religious sociologists. The Appendix of the Household Population gives 183 subdivisions that are

grouped together in the general statistics as other religions and persuasions.

Of these, 71,630 are Zoroastrians and 5618, Jews.

There are 25,416 Adivasis by religion and there are 1,367 tribals (in Nagaland), 119 animists, and 25,985 whose religion is simply Non-Christian (in Manipur, Meghalaya and Nagaland), together with 796 pagans in the same three States, and 1,215 Meathans in Manipur.

Some other tribals have given their specific tribal identity as their religions: as for example, the census has the record of 484 Oraons, 32,252 Santals, 1,481 Garos, 6,975 Gonds, 4,133 Hos, 148,437 Khasis, 1,160 Mundas, 1,296 Nagas.

Nirankaris, numbering 3382, of apparently Hindu following, have entered themselves under geographical or caste terms like Agarwal, Bengali, Gujarati, Maharashtrian, Marathi, Marwari, Malayalee, Tamilian and Teluguite.

Perhaps of more interest is that a total of 29,086 persons corresponding to 5,117 households consider themselves as atheists (predominantly in rural areas of Tamil Nadu, Maharashtra, Madhya Pradesh, Manipur and Bihar). There are 816 humanists (manab dharma), half of them in Maharashtra.

Census of 1981 gives some other interesting data too.

The total fertility rate in India (excluding Assam) is 3.9 in rural areas, 2.8 in urban areas, and 3.6 for total area.

It may be noted that fertility is higher among Muslims, followed by Buddhists, Hindus, Sikhs, Jains and Christians.

At the national level, the total fertility rate for both Jains and Christians is identical, being 2.6.

Population by Religion

Religious group	1961		Number (mil lion)	1971		Number (million)	1981	
	Number (million)	Percentage to total		Percentage to total	Percentage to total			
Hindus	366.5	83.5	453.4	82.7	549.7	82.6		
Muslims	46.9	10.7	61.4	11.2	75.6	11.4		
Christians	10.7	2.4	14.2	2.6	16.2	2.4		
Sikhs	7.8	1.8	10.4	1.9	13.1	2.0		
Buddhists	3.2	0.7	3.9	0.7	4.7	0.7		
Jains	2.0	0.5	2.6	0.5	3.2	0.5		
Other	1.6	0.4	2.2	0.4	2.8	0.4		
Total	439.2	100.0	548.2	100.0	665.3	100.0		

Source: Census of India 1981.

Symbols of Heritage

INDIA GATE, Delhi A memorial to over 90,000 Indian soldiers who died in World War I. The names of 13,516 soldiers are inscribed on it. The arch rising to a height of 42 m. is surmounted by a stone bowl where since 1971 an eternal flame has been lit—the Amar Jyothi—to honour the Unknown Soldier.

QUTAB MINAR, Delhi One of the best known symbols of Delhi. Qutab Minar was built by Qutb-ud-din Aibak, the slave king in the 13th century as a victory tower. It is 72.5 meters high. The five-storeyed Minar of red sandstone has ornamental filigree of Koranic inscriptions. In the centre of its courtyard is an Iron Pillar erected by king Chandra Varman which has remained rust-free for more than 1500 years.

RED FORT, Delhi The citadel of the seventh Delhi, Shahjahanabad, it is over 2 km. in circumference and has within its precincts several beautiful edifices. Built by Shah Jahan in 17th century, the Red Fort was the seat of Mughal power in India until 1857.

RASHTRAPATHI BHAWAN, Delhi The official residence of the President of India, set in 330 acres of land was formerly the Viceregal Palace. Overlooks a beautiful Mughal garden. It has 340 rooms, 37 salons, 74 lobbies and loggias, 1 km. of corridor, 18 staircases and 37 fountains.

BAHAI HOUSE OF WORSHIP, Delhi The lotus shaped marvel in marble is referred to as

the Taj Mahal of the 21st century. Completed in 1986, it has about 10,000 visitors every day.

HUMAYUN'S TOMB, Delhi One of the most perfectly planned octagonal buildings in the history of Indian architecture. It served as an inspiration for Taj Mahal. By the side of Mathura road, to the east of Hazrat Nizamuddin's shrine, this memorial to Humayun was built by his senior widow (Haji Hamida Begum) (AD 1565).

JAMA MASJID, Delhi The largest mosque in Delhi, built during the reign of Shah Jahan. It is situated just opposite the Red Fort. Over 20,000 people can gather here at a time to pray.

JANTAR MANTAR, Delhi The oldest observatory of its type, constructed by Maharaja Jai Singh II of Jaipur in 1725. It is dominated by a huge sundial. Other structures are meant for measuring the position of stars, altitudes and calculating eclipses. A similar observatory exists in Jaipur (Rajasthan).

MEENAKSHI SUNDARESWAR TEMPLE, Madurai (Tamil Nadu) (17th century) The monumental gateways are among the most elaborately carved in South India. It is believed there are about 30 million sculptures in the temple.

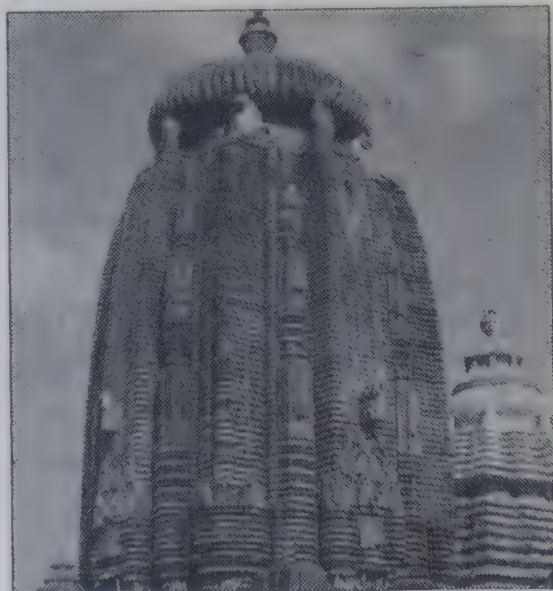
JEWISH SYNAGOGUE, Cochin (Kerala) Built in 1568 it is the earliest surviving synagogue in India. It has the Great Scrolls of the Old Testament, historical copper plates and exquisite Chinese hand-painted tiles.

GOLDEN TEMPLE, Amritsar (Punjab) The holiest of the Sikh Shrines, part of the exterior is gilded with gold leaf. The Hari mandir in the midst of a pool has its reflection shining in the still waters of the sacred tank. Guru Granth Sahib, the holy book of the Sikhs, is enshrined inside. Built in 1577.

TAJ MAHAL, Agra (UP) One of the seven wonders of the world, it was built of white marble by Emperor Shah Jahan between 1630 and 1648 to immortalize his beloved queen Mumtaz Mahal. The greatest showpiece of Mughal architecture is noted for its unique design and ornate facade. A dream in white marble.

BULAND DARWAZA, Fatehpur Sikri (Uttar Pradesh) At 53.5 m. (175 ft.), it is the highest gateway in India. It was built by Akbar at Fatehpur Sikri, 50 km. from Agra, to commemorate his conquest of Khandesh in Gujarat.

THE BADA IMAMBARA, Lucknow (Uttar Pradesh) Asia's largest vaulted hall, a hall without any external support of wood, iron or stone beams.



Lingaraja Temple, Bhubaneswar



Victoria Memorial, Calcutta

GATEWAY OF INDIA, Bombay A triumphal arch built to commemorate the visit of British monarchs King George V and Queen Mary in 1911. The last of the British troops left India through it. It is a 26 feet tall architectural marvel.

KAILASH TEMPLE, Ellora (Maharashtra) Largest rock-cut shrine in India, measuring 84m x 47m. It was carved out from the top of a hillock and over 200,000 tonnes of rock were removed. Built during the reign of King Krishna I who ascended the throne in 760 AD.

CHARMINAR, Hyderabad A majestic monument of four minarets built in 1591, to commemorate the cessation of plague in the city, according to the chronicles. This city landmark is a magnificent gateway with its fine stucco work and graceful towers.

GOL GUMBAZ, Bijapur (Karnataka) (17th century) Its dome is the second largest in the world. The Whispering Gallery within is so called because even the gentlest whisper echoes across its great length. The 40 meter diameter Gol Gumbaz has a marvellous acoustical system.

SE CATHEDRAL, Goa The largest church in Asia, completed in 1652, it has a 80-meter—long aisle and 14 altars. The Cathedral dedicated to Saint Catherine has five bells of which one is the famous Golden bell, one of the best in the world. A glorious example of Renaissance architecture.

BASILICA OF BOM JESUS, Goa (17th century) The church houses the mortal remains of St. Francis Xavier. A fine example of baroque architecture, it is the richest of churches in Goa.

MAHABODHI TEMPLE, Bodhgaya (Bihar) (7th century) Erected to mark the spot of the Buddha's enlightenment, this is the sole survivor of the monumental brick traditions in India. The temple is a primordial tower 170 ft. high,

crowned by a bell like stupa.

VICTORIA MEMORIAL, Calcutta A marble monument commemorating the empress Victoria. A storehouse of Indian history and Victoria memorabilia.

HAWA MAHAL, (Palace of Winds) Jaipur The landmark of the Pink City, built in the 18th century. The intricately carved and balconied, five storeyed facade of 953 windows was built for the women of the harem to look out without being

seen themselves.

SANCHI STUPA, Sanchi (Madhya Pradesh) The great hemisphere is 120 ft. in diameter, and covers the relics of Gautama Buddha.

LINGARAJA TEMPLE, Bhubaneswar (Orissa) The height of this 11th century shrine is 36.5 m. There is a triple tier of mouldings with numerous prestigious and sculpted niches.

JAGANNATH TEMPLE, Puri (Orissa) The 12th century shrine of the Lord of the Universe rising to a height of 65 meters, its conical pinnacle overlooks the landscape for miles around. The wall treatment integrates architectural and sculptural elements. Rath Yatra in June is the chief festival.

SURYA TEMPLE, Konark (Orissa) The sun temple or 'Black Pagoda' was conceived as a chariot of the sun god, drawn on 12 pairs of wheels by seven horses. Built in the 13th century by King Narasimha Deval.

KHAJURAHO TEMPLES, (Madhya Pradesh) (11th century) 22 temples (out of the 85 originally built by Chandela kings) known for their graceful contours and erotic sculptures. They are one of world's greatest artistic wonders. The sculptures present woman as their celebrated theme.

SHATRUNJAYA HILL TEMPLES, Palitana (Gujarat) The hill is crowned by about a thousand magnificent Jain temples, which are marble structures built over a period of 900 years. A sacred spot of the Jains.

SOMNATH TEMPLE, Gujarat The legendary temple believed to have been built by the 'Moon God'. The treasures of the temple was ransacked by Mahmud Ghazni seven times. It was also destroyed by Allauddin Khilji and Aurangzeb, and every time it was rebuilt.

Principal Languages

India has 18 officially recognised languages (Konkani, Manipuri and Nepali were added to the official list of 15 in 1992). This is an evolution in a land of myriad dialects. The 1961 and 1971 censuses had listed 1652 languages as mother tongues spoken in India. This evolved through the ages by the various races that came into the land from ancient times.

The Indian languages of today have evolved from different language families corresponding more or less to the different ethnic elements that have come into India from the dawn of history. They may be grouped into 6 groups as under: 1. Negroid, 2. Austric, 3. Sino-Tibetan, 4. Dravidian, 5. Indo-Aryan and 6. Other Speeches.

These languages have interacted on one another through the centuries and have produced the major linguistic divisions of modern India. Among the major groups, the *Aryan* and the *Dravidian* are the dominating families. They have influenced each other and have, in turn, been influenced by the Austric and Sino-Tibetan tongues. It is easy to spot Sino-Tibetan and Austric borrowings in the Aryan and Dravidian languages and mutual borrowings of the Aryan and Dravidian groups.

Indo-Aryan, the Indic branch of the Indo-European family, came into India with the Aryans. It is the biggest of the language groups in India, accounting for about 74 per cent of the entire Indian population.

The important languages in this group are: Western Punjabi, Sindhi, Eastern Punjabi, Hindi, Bihari, Rajasthani, Gujarati, Marathi, Assamese, Bengali, Oriya, Pahari, Kashmiri and Sanskrit.

Hindi or Hindustani has produced two great literatures, *Urdu* and (High) *Hindi*. Both have the same grammar and the same basic vocabulary. They differ, however, in script and higher vocabulary. *Urdu* uses the Perso-Arabic script. *Hindi* uses the Nagari script and has a preference for purely Indian words, in contradistinction to the numerous Arabic and Persian words borrowed by *Urdu*.

Sanskrit, the classical language of India, represents the highest achievement of the Indo-Aryan languages. Although hardly spoken now-a-days, Sanskrit has been listed a nationally accepted language in the VIII Schedule to the Constitution.

Dravidian languages form a group by themselves, and unlike the Aryan, Austric or Sino-Tibetan speeches, have no relations outside the Indian subcontinent, that is, India, Pakistan and

Bangladesh. The Dravidian family is the second largest group in India, covering about 25% of the total Indian population.

The Dravidian language came into India centuries before the Indo-Aryan. It split into three branches in the Indian subcontinent — (i) The northern branch comprises *Brahui* spoken in Baluchistan and *Kurukh* and *Malto* spoken in Bengal and Orissa. (ii) The central branch is composed of *Telugu* and a number of dialects spoken in Central India — *Kui*, *Khond*, *Holani*, *Konda*, *Gondi*, *Naiki*, *Parji*, *Koya* and others. (iii) The southern branch is made up of *Tamil*, *Kannada*, *Malayalam*, *Tulu*, *Badaga*, *Toda*, *Kota* and *Kodagu*.

The outstanding languages of the Dravidian group are: (i) *Telugu*, the State language of Andhra Pradesh, numerically the biggest of the Dravidian languages. (ii) *Tamil*, the State language of Tamil Nadu, apparently the oldest and purest branch of the Dravidian family. (iii) *Kannada*, the State language of Karnataka, another ancient Dravidian language that has developed individually. (iv) *Malayalam*, the State language of Kerala, the smallest and the youngest of the Dravidian family.

India never had a common language which was intelligible to the masses everywhere in India. For many years, Sanskrit remained a common medium. But it was the language of the learned classes and not of the masses. Under the British, English became a sort of lingua franca. Here again, it was restricted to the educated few.

Of the 1652 mother tongues listed in the census, 33 are spoken by people numbering over a lakh. The following table shows the names of mother tongues and the number of speakers:

Mother Tongue	Estimated world figures Mid-1993 (m)
Hindi	418
Telugu	73
Bengali	196
Marathi	70
Tamil	69
Urdu	100
Gujarati	41
Malayalam	35
Kannada	44
Oriya	32
Punjabi	94

ndhi	18
ssamese	23
antali	5
ashmiri	4
ondi	2
onkani	4
ogri	1
orkhali/Nepali	16
hili/Bhilodi	3
urukh/Oraon	2
ulu	2
to	1

Source: World Almanac 1995.

With independence, the question of a common language naturally came up. The Constituent Assembly could not arrive at a consensus in the matter. The question was put to vote and Hindi won on a single vote—the casting vote of the President*. The Indian National Congress had advocated the formation of linguistic provinces. The acceptance of this policy involved the statutory recognition of all the major regional languages.

The constitution therefore recognised Hindi in Devanagari script as the official language of the Union (Art. 343 et. seq.) and the regional languages as the official languages of the States concerned (Art. 345 et. seq.). English was recognised as the authoritative legislative and judicial language (Art. 348 et. seq.). A schedule the 8th Schedule was added to the Constitution to indicate all regional languages statutorily recognised. The Schedule originally contained 15 languages as follows:

(1) Assamese (2) Bengali (3) Gujarati (4) Hindi (5) Kannada (6) Kashmiri (7) Malayalam (8) Marathi (9) Oriya (10) Punjabi (11) Sanskrit (12) Tamil (13) Telugu (14) Urdu (15) Sindhi.

By the 71st Amendment to the constitution, Konkani, Manipuri and Nepali were added to the list in 1992.

Assamese, an Indo-Aryan language, is the official language of Assam State. More than 57 per cent of the population of Assam speak Assamese.

Assamese has developed as a literary language from the 13th century.

Bengali, one of the leading Indo-Aryan languages, is the official language of West Bengal. It is spoken by 181 million people, the majority of whom are now in Bangladesh, formerly East Pakistan. Bengali emerged as a separate language around A.D. 1000. It is now one of the most advanced languages of India.

Gujarati, a member of the Indo-Aryan family, is the official language of the State of Gujarat. Gujarati started out as an independent language around A.D. 1200. It has progressed at a

rapid pace and is now one of the most developed Indian languages.

Hindi, numerically the biggest of the Indo-Aryan family is the official language of the Government of India.

Among the various dialects of Hindi, the dialect chosen as official Hindi is the standard *Khariboli*, written in Devanagari script. This was originally spoken in Delhi and some western UP districts. From the literary point of view, the term Hindi covers not only the Khariboli form, but also a number of other dialects like Brajbhasha, Bundeli, Awadhi, early Marwari of Rajasthan and the Maithili and Bhojpuri of Bihar.

Being the official language of six States and the Indian Union today, Hindi is receiving high patronage. This patronage and support has encouraged the development of Hindi as a great literary language.

Kannada, the official language of the state of Karnataka, belongs to the Dravidian family. The majority of its speakers is found in Karnataka where they form more than 65 per cent of the population. Kannada, as an independent language, dates from the 9th century. It has rich literary traditions.

Kashmiri, a language of the Indo-Aryan group, is often mistaken as the state language of Jammu and Kashmir. Urdu is the State language of Jammu and Kashmir.

Kashmiri-speaking population in Jammu and Kashmir comes to about 55 per cent of the total population. Kashmiri literature goes back to A.D. 1200. It is comparatively a developed language. It is written, at present, in the Perso-Arabic script.

Malayalam, a branch of the Dravidian family, is the official language of the State of Kerala. Malayalam struck out on its own by the 10th century A.D. It is one of the most developed languages of India.

Marathi, belonging to the Indo-Aryan stock, is the official language of Maharashtra.

Though Marathi separated from the main Indo-Aryan stock at a very early date, its literary career began only in the 13th century. Since then, it has made great progress. It has today a fully developed literature of the modern type.

Oriya, a branch of the Indo-Aryan family, is the official language of the State of Orissa, where Oriya-speaking population comprises some 82 per cent of the population.

Oriya is found recorded as far back as the 10th century. But its literary career began only in the 14th century.

Punjabi, belongs to the Indo-Aryan family and is the official language of the State of Punjab.

Punjabi, though a very ancient language,

turned literary only in the 15th century. From the 19th century, Punjabi showed vigorous development in all branches of literature. It is written in the Gurumukhi* script.

Sanskrit, the classical language of India, is also one of the oldest languages of the world perhaps the very oldest to be recorded. It starts with Rig Veda, which appears to have been composed around 2000 B.C. Early Sanskrit is known as Vedic Sanskrit and covers the period between 2000 and 500 B.C. Classical Sanskrit covers the period between 500 B.C. and A.D. 1000.

Sindhi, is a branch of the Indo-Aryan family. It is spoken by some 16 million people, of whom 5½ million live in Sind (Pakistan), and the rest mostly in India.

Sindhi has preserved some of the archaic features of the old Indo-Aryan language. Sindhi uses the Perso-Arabic script in Pakistan. Speakers in India use mainly the Devanagari script. Of late Sindhi has developed noteworthy literature also.

Tamil, the oldest of the Dravidian languages, is the State language of Tamil Nadu. Tamil

Much ado over a dictionary

Purists were enraged. A record number of 7000 new terms heightened their fears that the English language is under threat from innovation. Modernist publishers Oxford University Press and defenders of the Queen's English were engaged in a war of words before the publication of the New Concise Oxford English Dictionary.

The new words included many from the world of politics, computers and international cuisine. Among them India's 'Paratha' and 'Raita'. 'Paratha' is a piece of unleavened bread fried on a griddle and 'Raita', the Indian dish of chopped cucumber and spices in yoghurt.

"Standard English is the means by which a Nigerian child can communicate with a man from Glasgow and we feel that this quality is being eroded", said Anne Shekkey of the Queen's English Society. But a COD editor said, 'We reflect the language as it changes'.

Exotic words find place in the dictionary. 'Yakitori' is one. It is a Japanese dish of skewered grilled chicken. Ableism is the discrimination in favour of able-bodied people, and a 'glass ceiling' an unacknowledged barrier to personal advancement. Female equality is seen in 'clergywoman' and 'waitperson'.

literature goes back to centuries before the Christian era. In originality, though not in extent, Tamil literature stands by itself. It represents certain new literary types which are not found in Sanskrit or other Aryan languages. The language is spoken by 64 million or more and judging by its modern publications, it is advancing at a fast pace.

Telugu, numerically the biggest of the Dravidian languages, is the State language of Andhra Pradesh. Next to Hindi, it is the biggest linguistic unit in India. Telugu is found recorded from the 7th century A.D. But it was only in the 11th century that it broke out into a literary language.

Urdu, the State language of Jammu and Kashmir, is spoken by more than 28 million people in India (1981 census).

The name Urdu is derived from Zaban-e-Urdu-Muala which means the language of the exalted camp or court. The exalted camp or court here meant the camp or court of the ruling Sultans of Delhi.

Urdu and Hindi have proceeded from the same source, that is, from the Khariboli speech of Delhi and surrounding areas. The Khariboli was a spoken language which prevailed around Delhi, since the 13th century.

In the 19th century, when the Delhi Sultanate disappeared and the British became the rulers, Sir Sayyid Ahmed Khan (1817-1898) started revival of Urdu, as the language of the Muslims in India. Modern Urdu was thus born.

Urdu has produced an extensive literature. Muslim speakers of Urdu use the Perso-Arabic script while Hindus use the Devanagari script. Urdu is also written in Roman characters.

Art. 343 of the Constitution provides that for a period of 15 years from the commencement of the Constitution the English language shall continue to be used for all official purposes of the Union. It was expected that after the expiry of the stipulated period (that is after 1965) Hindi would displace English as the official language of the Union.

Subsequent developments have turned the current in favour of continuing English as an additional official language, no definite date being fixed for its elimination and replacement by Hindi.

As matters stand, the languages listed in the Constitution remain the official languages in the respective States, while Hindi and English continue to be used for inter-State correspondence and for all-India use generally.

* Gurumukhi literally means from the face of the guru. It is the name given to the script devised by the Sikh guru, Guru Angad, in the 16th century. The Gurumukhi is based on the old Sharda script, which is related to the Nagari script.

Indian Literature

Indian Literature is one though written in many languages this has been the slogan of the Sahitya Akademi ever since its inception in 1954. There are 18 officially recognised languages in India (Konkani, Manipuri and Nepali were added in 1992.) and each has produced a literature of great vitality and richness. Though distinctive in parts, all stand for a homogenous culture that is the essence of the great Indian literature.

The Indian Constitution recognised 18 languages after taking into consideration their numerical, commercial, political and cultural importance. But the number of mother-tongues as per 1961 Census is 1652. This bewildering figure has been arrived at, taking into account even dialects spoken only by five persons. The 1971 Census gives a more realistic figure of 700, having taken into account the dialects spoken by 1000 people and above.

These languages belong to four major speech families the Aryan, the Dravidian, the Sino-Tibetan (or Mongolian) and the Austric. But the 15 major languages come under the Indo-Aryan (11) and the Dravidian (4) families. They are also literary languages. The Sahitya Akademi (the National Academy of Letters) has approved not only these 15 languages, but also English and six more Indian languages (Dogri, Konkani, Manipuri, Maithili, Nepali and Rajasthani) for its activities.

The addition of six languages was done after a good deal of deliberation by expert committees appointed by the Akademi since 1960. Thus we can say that Indian literature is produced in at least 22 languages. In other words, there are 22 Indian literatures recognised by the Sahitya Akademi.

Since its inception in 1954, the Sahitya Akademi has been propagating the idea of cultural unity by using the slogan 'Indian Literature is one though written in many languages'. This aphoristic statement is honestly questioned by thinkers who point out that literature is language-based and hence it is intrinsically linked with the language in which it is written.

The literature of a particular language has its own special form, symbols and nuances. Therefore it is more logical to say that there are as many literatures in India as there are languages which have flowered into literature. This approach has its own relevance and force. But there is another side to the question. When we survey the various literatures of India, it is

possible to recognise some common characteristics which reveal their Indian-ness, some threads which hold them together despite their distinctive flavour or diverse association. The idea of one-ness of the literature is a *concept*, and this cannot be questioned.

The like-minded response of our creative writers in the many languages to common problems and similar experiences is unmistakably clear. Therefore the use of Indian Literature in the singular is as acceptable as its use with the plural. As a matter of fact, Western Orientalists and Indologists as also Indian scholars and historians have used the term in the singular and also in the plural as evidenced from the titles of books written by them and no one has questioned the usages. But it is significant that no one uses the term 'The Indian Language' (in the singular) as there is no language which can make such a claim.

English has been used by Indians for literary expression in the last 200 years. Thus we have 22 developed languages in India, which produce 22 literatures and these have a substantial common denominator justifying the expression 'the Indian literature'.

These 22 languages are not equal in their development and national or state support. No doubt all the regional languages have received a fillip after the attainment of independence. English, though foreign in origin, still plays an important role as the Associate Official language and the most effective link language both within India and outside India. Indians have made their own contribution to the English language in creative writing and in intellectual pursuits. That is why the Sahitya Akademi has approved it for its programmes.

Even the 15 scheduled languages which the Akademi had originally approved differ in their background, historical development and functional relevance. Sanskrit language and its literature has a special place in our civilization. It

We have 22 developed languages in India, which produce 22 literatures and these have a substantial common denominator justifying the expression 'the Indian Literature' with its intrinsic variety.

is the oldest classical language and had functioned as the most powerful formative agency and integrating force from the very beginning of Indian history.

Spoken Sanskrit (by whatever name it has been called) is the fountain from which the languages of Aryan India had originally sprung; the principal portion of their vocabulary and their inflexional system being derived from this source. Even the Dravidian languages which have a considerably different morphological system are indebted to Sanskrit in the realms of vocabulary and phonology with the partial exception of Tamil. Actually, there is no important language or literature in India which has not been influenced and enriched by Sanskrit and its great literature. Traditional Indian culture cannot be properly understood without the help of Sanskrit. This has been well recognised by orientalists but the complementary role played by ancient Tamil works representing the Dravidian stock has not been appreciated as much as it should have been.

Next to Sanskrit comes Tamil with reference to the antiquity of literature. Except Tamil in the South and Urdu in the North, almost all the modern Indian languages emerged more or less within the same period of Indian history. Urdu has only a heritage of about five centuries.

For a period of about 40 years, Bengali language dominated in Assam especially in administration and education. But that came to an end with the renaissance of Assamese.

As regards state patronage there is considerable variation. Hindi has a pre-eminent place in the national set-up as the official language of the Union of India and that of six states. Kashmiri and Sindhi have no state to support them as official languages. Sanskrit remains apart as a classical language, the other languages each has

a state to support and foster: Assamese (Assam), Bengali (West Bengal), Gujarati (Gujarat), Kannada (Karnataka), Malayalam (Kerala), Marathi (Maharashtra), Oriya (Orissa), Punjabi (Punjab), Tamil (Tamil Nadu), Telugu (Andhra Pradesh) and Urdu (Jammu & Kashmir). Brief reviews of the twenty-two literatures are given below:

Assamese

Though the antiquity of the Assamese language can be traced back to the seventh century

A.D. it sprouted literary forms only by the 13th century. Rudra Kandali's translation of the *Dronaparva* (of the *Mahabharata*) and Madhav Kandali's rendering of the *Ramayana* are two works of classical eminence of the early period. The new Vaishnavite movement in the 15th century AD gave an impetus to the vernacular literature. Sankara Dev (1449-1568), during his long life, popularised the movement by his great poetic compositions, dramas and lyrics.

The poetical compositions from the 16th to the 19th centuries may be classified into six categories: (i) translation from the epics and puranas, (ii) *Kavyas* based on episodes and stories from the epics and puranas, (iii) lyrics, (iv) secular and utilitarian *Kavyas*, (v) biographical works, and (vi) devotional anthologies and compendia. Traditional poetry was composed keeping an assembly of listeners in view as literacy was confined to the privileged classes.

The great names that should be remembered are Bhattadev (1558-1638) who popularised Assamese prose, Damodara Dev who wrote important biographies, and Purushottam Thakur who wrote grammatical works. The *Buranjis* constitute a glorious chapter in Assamese literature. Actually modern Assamese prose emerges from *Buranjis*, though the European missionary also has an important role in the shaping of modern prose. In the 17th century a prose version of the *Ramayana* was written. Literature also broke out into secular channels.

The last three quarters of the 18th century and the first half of the 19th century were on the whole a barren period. Then with the influences of the West, the modern period commences. For a period of about 40 years (1836-72) Bengali language dominated in Assam especially in administration and education; but that came to an end especially when the Christian Missionaries started their work of compiling dictionaries and writing grammars of Assamese and translating the Bible in simple prose. The translation of the whole Bible into Assamese by the missionaries and its publication in 1813 was an important event.

The leaders of renaissance in Assamese literature are Chandrakumar Agarwalla (1858-1938), Lakshminath Bezbarua (1867-1938), and Hemachandra Goswami (1872-1928). The monthly *Jonaki* which ushered in the romantic movement was founded by them. The leading novelists of the 19th century were Padmanath Gohain Barua and Rajanikantha Bardoloi. Both of them have written quite a few historical novels. In the field of social novel, the important names are Dandinath Kalita, Daiba Chandra Talukdar and Bina Barua. In the post-independence period the more important fiction writers

are Syed Abdul Malik (b. 1919), Jogesh Das (b. 1927) and Briendra Kumar Bhattacharya (b. 1924), the last one has annexed the Jnanpith Award (1979) for the novel *Mrutunjaya*. Besides social novels Assamese has a good number of regional and biographical novels. Assamese is fairly rich in short story, personal essay, biography and other forms of modern prose. Both in poetry and prose, a Marxian emphasis is evidenced in the forties and fifties of the present century. Western literature has considerably influenced contemporary writing. The influence of French symbolists and English poets like T.S. Eliot is quite patent:

Bengali

Historians of Bengali literature find early forms of Bengali writing between the 8th and the 12th centuries AD. Among these the Natha literature of the 12th century is more important from the literary point of view. This form of literature has emerged from the Buddhist Sahajiya cult. The Vaishnava cult also gained ground. From the middle of the 14th century, Radhakrishna lyrics became very popular and Chandidas was the great spokesman of this form of writing. He has composed about a thousand poems.

Translations or rather adaptations of the *Ramayana* became very popular in the 15th century. The most well-known is the *Ramayana* by Krttivasa Ojha. Critics consider it an adaptation of one particular book. *Ramayana* of Krttivasa is revered as much as *Ramacharita-manasa* of Tulasidas in North India.

The types of literature which became popular after the Bengali rendering of the classical Sanskrit works, are called *Mangal Kavyas*. They are long narrative poems extolling the struggle of a god or goddess to establish himself or herself against certain rivals. There are three recognised varieties of *Mangal Kavyas*: (i) *Manasamangal* (ii) *Chandimangal* and (iii) *Dharmamangal*, each representing a separate godhead.

The advent of Sri Chaitanya (1486-1533) was an epoch-making event in Bengali literature which spread to neighbouring languages as well. The life and teachings of Chaitanya made Vaishnavism a living faith. Many of his disciples produced literature of great power and the influence continued for over two centuries. The literature comprised two classes, lyric poetry and biographical works. The Radhakrishna love songs were so popular that even Muslim poets composed some poems on the same theme.

The 18th century was, comparatively speaking, a period of decadence in Bengali poetry. The modern period begins practically with the 19th century. Bengali prose evolved and devel-

oped in such a manner that it became a suitable medium for literary expression. For this the European missionaries and the English-educated Bengali were to a great extent responsible. The missionaries produced grammars and dictionaries and they translated the Bible into Bengali prose.

The establishment of the Fort William College at Calcutta in 1800 was an epoch-making event. The contribution of William Carey, a Serampore missionary was so substantial and significant to Bengali and other Indian languages that it will never be forgotten. Carey wrote a Bengali grammar, compiled an English-Bengali dictionary and organized the translation of the Bible into Bengali.

Translation of English literary works gave a fillip to Bengali prose writing. At the same time, translation from Sanskrit was not disregarded. While poetry gained a new dimension, new literary forms like the novel, the short story, the personal essay and biography took shape in the language. The most outstanding poet of the mid-19th century was Michael Madhusudan Dutt (1824-73) who composed the classic *Meghanad Badh Kavya*, the first epic poem in Bengali in the western sense. He was inspired by Homer, Virgil and Dante. He also wrote some plays which differ from the traditional *yatra* type.

Bankim Chandra (1838-94) wrote his first romantic novel *Durgeshnandini* in 1865. This gave a thrill to the readers of Bengali and soon translations appeared in sister languages. Bankim wrote more such novels like *Anandamath*, *Rajsimha*, *Vishavriksha*, etc. that he was hailed as a pioneer novelist in India. Sarat Chandra followed him with several novels of classical dignity and charm. His *Nishkrit* (Release), *Bindur Cele* (Bindu's Ward) and *Srikanta* are particularly well-known. Another significant work of the period is the play *Nildarpan* (the Indigo Mirror 1860) by Dinabandhu Mitra. In the third quarter of the 19th century Bengali literature was brimming with activity in all the genres of literature.

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Bengali literature reached the summit of its glory through the lifelong service of Tagore. It was actually a spiritual endeavour for the bard. The post-Tagore period is also very rich.

Thousands of lyrics, poems and songs, about a dozen novels, three dozen plays, volumes of short stories and a mass of prose literature flowed from his pen. His own translation of *Gitanjali* into English brought him international fame when he was awarded the Nobel Prize in 1913. His *Gora* is considered a very outstanding epic novel in our literature.

The post-Tagore period of Bengali literature is also rich. Here we find novelists like Tarashankar Banerji, Manik Banerji and Bibhutibhushan Banerji in the field of fiction, Jibananda Das, Nazrul Islam, Sudhindra Nath Datta, Buddhadeva Bose, Premendra Mitra and Bishnu De in poetry, Dinabandhu Mitra, G.C. Ghose and Dwijendralal Roy in the field of drama and a host of others who have an established reputation in Bengali. Quite a few of them are known beyond the borders of Bengal, Bibhutibhushan's *Aranyak* (Pertaining to forest, 1937) and *Pather Panchali* (Saga of Path, 1929) are extremely sensitive novels translated into many languages. Tarasankar's *Gana Devata* (God of the

Masses, 1942) and *Arogyaniketan* are equally well known. Manik Bandopadhyaya's *Padmanadir Maghi* is another great novel. It may also be stated that several movements in literature sprouted in Bengali first and then spread over to other languages in India. Some works of Post-Independence period in Bengali literature have also influenced other Indian literatures, though not to the same extent as the Tagore period.

Dogri

Dogri is one of the modern Indian languages spoken in the state of Jammu and Kashmir and also in Himachal Pradesh. It has traces of the old Sanskrit dialects as well as the dialects spoken by the Khasas, Yavanas, Takkas, etc. in the Dogra Hill areas. Rev. Carey has made mention of it in 1816 and John Beames in 1867. Its old script Takari has been replaced by the Devanagari script.

Dogri has a rich tradition of folk literature consisting of folk-tales, riddles and proverbs.

These deal with every aspect of life from the cradle to the grave. There are also quite a few long narrative poems in praise of gods known as *Bhetas*.

Among the earlier Dogri poets mention may be made of Manak Chand (16th century), Gambhir Rai (17th century), Devi Ditta (18th century) and Ganga Ram (19th century). Rajauli (the Genealogy of Kings) a translation of a Persian work by Teheldas (1614-59) is the earliest prose work in Dogri. The first book printed in Dogri is the translation of the New Testament brought out (in 1818) by the Serampore missionaries.

During the first four decades of the 20th century seven poets wrote in Dogri. Among them Hardutt Shastri (1890-1956) is the most outstanding. He wrote on socio-religious and patriotic themes. The first quarter of the 20th century is a period of great decline in Dogri literature with Urdu or Punjabi making inroads in the literary situation. In due course Dogri asserted itself. Dini Bhai Pant (b. 1917) is considered to be the first Dogri poet of modern consciousness. He gave a new dimension to Dogri poetry. Patriotism was the dominant theme of Dogri poetry for some years after the Pakistani invasion. It then gave way to the poetry of socialism. An important work to be mentioned here is the first anthology of Dogri poetry titled Jogo Duggar (Awake the land of Dogrees, 1949). It contains moving poems for 12 poets.

Ghazal is popular in Dogri. Kunwar Viyogi is outstanding in the composition of ghazals. Since 1950, over a hundred new poets emerged on the Dogri literary scene. The more prominent among them are Madhukar, Padma Sachdev, Charan Singh, Mohanlal Sapolia and Sarma Sarathe. Short stories are popular in the language. Narendar Khajuria writes fine stories and other forms of prose. He is a past-master in using irony and humour. There are also a few plays and novels in Dogri. Among the fictionists Ved Rahi's name stands out. Others who have made significant contributions are Bhagawat Prasad Sathe, Ram Nath Shastri, Narendra Khajuria and Madan Mohan Sharma.

Gujarati

Gujarati language evolved from one of the dialects of the standard Gurjara Apabhramsa and got a distinctive form by the 12th century. Jain influence is quite strong especially in the early periods. The history of Gujarati literature falls into four broad periods: (1) 1250-1456, (2) 1456-1650, (3) 1650-1825 and (4) 1825-1975.

By about 1250 Gujarat became an independent political unit with considerable achievement in art and literature. Sanskrit was cultivated and libraries were set up in the monasteries. Saivism became strong. Heroic romance, historical chronicle and the romantic tale are the principal narrative forms of this early period. *Rasa*, originally a folk-dance was converted into melodious dramatic poetry by Jain authors, *Phagu*, a shorter and more lyrical poem also became popular. Jinapadmasuri, Rajasekharasuri and Jayasekharasuri (all of the 14th century) were important poets who popularised the *phagu*. Romantic tales in verse also were in vogue. The Jain scholars took to writing in prose which was elegant and simple. *Prithvichandra* (1422) by Manikyasundarasuri is a reputed work of poetical prose.

In the second period the language breaks away from the Rajasthani idiom. Hinduism takes the place of Jainism as the main source of literary inspiration. The epics and puranas flow into Gujarati. The great poets of the period are Narasimha and Mirabai; the latter is being claimed by languages like Hindi and Rajasthani. Narasimha Mehta (1414-1480), though not the first Gujarati poet, is considered to be the father of Gujarati poetry like Ezhuthachan in Malayalam. His *Govinda-Gamana* and *Sudama Charitra* are very well known.

Mirabai (1499-1547) is the most celebrated woman poetess of India. Her bridal devotion to her Lord Krishna has a ring of purity and is a fine example of the sublimation of the sex element. After them comes Bhalana (1434-1514), the great scholar and artist who has adapted *Kadambari*, *Nalakhya* and *Ramabalacharita*. Bana's prose work *Kadambari* has been rendered in a versified form.

Here Bhalana shows the art of pruning the luxuriance of the original and adding imageries of local significance. Nakara (1500-1575) and Vishnudasa (1564-1632) enriched the *Akhyana* literature. The *Ramayana*, the *Mahabharata* and the *Puranas* were brought into Gujarati in an assimilable form by them. Akho (1591-1656) of Ahmedabad was the champion of Vedantic poetry of Gujarati.

Thus we pass on to the third period when Akbar formed the province of Gujarat separating it from Marwad. Life was dull from about 1700 until the British came to the scene. Premanand (1636-1734) is the finest poet of this period. He brought the *Akhyana* technique to perfection. The 16th century was rich in romantic tales which were composed by Jain and non-Jain poets alike. We thus come to the modern period where the impact of the west is clearly seen in the literary productions. Dalapatram (1820-1898) and Narmad (1833-86) were the

leaders of this new age. They were scholars and classical poets. Nandasankar's *Karana Ghelo* (1866) is the first novel in Gujarati. But the most celebrated novel *Saraswatichandra* (1887-1901) in four volumes came from the pen of Govardhanram Tripathi (1855-1907). It is considered to be one of the great classics of modern India. It is a love story with social and spiritual relevance.

In the field of fiction we have the stalwart, K.M. Munshi. He is the author of several historical and social novels and a master of Gujarati prose. One should not forget the valuable contribution of Gandhiji who influenced Gujarati writers to write simple and direct prose as also Kaka Sahib Kalelkar who wrote in Gujarati, Hindi and Marathi with equal ease.

Coming to the contemporary period Gujarati flourished in all genres of literature, the most outstanding poets are Sundaram and Umasankar Joshi, (novelists Pannalal Patel, (who won the Jnanpith Award of 1985) and Dhansukhlal Mehta. Among the playwrights, the names of C.C. Mehta, Umar Wadia and Shivkumar Joshi may be mentioned.

Sundaram and Umashankar Joshi (who was president of Sahitya Akademi for a term) are considered twin poets of the modern period. *Kavyamangala* and *Yatra* are considered major collections of Sundaram's poetry. Joshi's *Viswasanti* is a long poem on the life and work of Gandhiji. Equally well known is his last collection of poems entitled *Saptapadi* (1981). He has written poetry on love, nature, God, the Freedom Movement, the Agony of Partition and on everything concerning modern day life. C. C. Mehta is a veteran in the field of Drama. His *Agagadi* is considered a landmark in Gujarati literature. Kaka Kalelkar's autobiography *Smarana yatra* is a magnificent piece of writing. Equally fascinating are the short stories of Gulabdas Broker.

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Hindi

The Hindi language comprises a number of dialects of which those used for literary composition are Khariboli, Rajasthani, Maithili, Brajbhasha and Awadhi. Khariboli became the

chief literary medium only by the 19th century. The early period of Hindi literature which is called *Adikala* is accepted as the period upto mid-14th century.

The main groups of trend-setters in this period were: (i) the Siddhas, (ii) the Jain Poets, (iii) the Nathapanthis and (iv) the heroic poets. The Siddhas belonged to the later Buddhistic cult called *Vajrayana*. The *Nathapanthis* adhered to a cult in which *Hatha yoga* was practised. The works of heroic poets are generally known as *Rasau* poems (derived from *rasa*, a style of verse biography which was also sung).

The second period which consists of the mid-14th to mid-17th century is dominated by devotional poetry (*Bhakti Kavyas*). The Hindi *bhakti* poetry consists of two streams: (i) *Nirguna* the poets who believed in a formless God or abstract name: (ii) *Saguna* the poets who believed in singing and writing about a God with attributes (human incarnation like Rama in particular).

Kabir (1398-1518) is the most important poet in the *Nirguna* school. He preached the universal religion of man above and beyond Hindu or Muslim orthodoxy and composed a large number of songs and poems. Guru Nanak (1469-1538), the founder of Sikhism, is also accepted as an outstanding poet of this school.

The *Saguna* stream is related to Vaishnava poets who belong to two categories, those worshipping Krishna and those worshipping Rama. Surdasa whose poems have been compiled under the title *Surasagara* was a great poet of Krishna poetry. Vidyapati claimed by Bengali and Maithili was a versatile composer of Hindi poems.

The great champion of Rama poetry is Tulasidas (1543-1623) whose *Ramacharitamansa* is considered an immortal classic by all lovers of Hindi poetry. He has command over all the important styles of composition narrative, epic, lyrical and dialectic. He has given a human character to Rama, portraying him as an ideal son, husband, brother, king and so on. Tulasidas considered Siva and Vishnu as two aspects of the same supreme being and this brought about unity among the Hindus.

The third period is spoken of as the *Ritikavyakal*. It is also referred to as the *Ritismgara Kavya*. Though literally the word *riti* means a way of writing poetry in Hindi it refers to a special form in which the erotic element is preponderant. The *riti* can either be explicit or implicit. Hindi is very rich in both these categories of poetry. During the same period Hindi had also a good collection of Devotional poetry and Historic poetry. In the *Bhakti* period there were many epics and long narrative poems composed in the dialects of Hindi (Awadhi, Brajbhasha, etc.).

The modern period of Hindi literature commences with the second half of the 19th century. Bharatendu Harischandra (1850-84) was the pioneer who ushered in the modern era. He deliberately made Khariboli the medium for his prose and dramatic writings. But, for poetic composition he used Brajbhasha.

Other important writers of this formative period are Maithili Saran Gupta (1886-1964), R.N. Tripathi (1889-1962) and Gopala Sarana Sinha (1891-1960). Maithili Saran revived the epic tradition. Far-reaching events in the national and international spheres had their effect on Hindi literature. The romantic upsurge spoken of as Chayavada is an important element of the period.

Jayashankar Prasad, Suryakant Tripathi Nirala and Sumitra Nandan Pant are the leading luminaries of the movement. *Kamayani* by Jayashankar published in 1936 is hailed as a magnum opus. It is the psycho-biological journey of a man through time and space. Mahadevi Varma is one of the major poets of the *Chayavad* school.

In the second phase of the modern period, which is referred to as the *Dwivedi yug*, the leading figure obviously was Mahavir Prasad Dwivedi. Poetry, Drama, Novel, Short story and the Essay flourished on account of western impact. Drama in Hindi has a long history from the 14th century. But the prose-drama developed only towards the close of the 19th century.

Bharatendu and Jayashankar Prasad have written quite a few plays. In the field of fiction, the great stalwart no doubt is Premchand. His novel *Godan* has been translated into many languages, Indian and foreign. By his novels and short stories, Premchand raised Hindi literature from the plane of entertainment to one of contemporary realism. He was the champion of the progressive movement. Other important novelists of the contemporary period are Jainendra Kumar, Phaneswar Nath Renu, and Satchidananda Vatsyayan. Jainendra Kumar in his novels *Sunita* and *Tyagapatra* concentrated on human psyche. Renu gave a new dimension to novel writing by introducing the regional

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novel, the classical example being his *Maila Anchal*. Vatsyayan (Ajneya) is the initiator of a new trend in Hindi literature called *Prayogavad* (experimentalism). Both in poetry and fiction his contribution is outstanding. *Sekhar Ek Jivani* (1941) has been acknowledged as his most important novel. Dharma vir Bharati, Girija Kumar Mathur, Mukti both, and Lakshmi Kant Verma are other distinguished experimentalists of the post-Independence period.

Kannada

Kannada has a long history of literature next only to Sanskrit and Tamil. Though Dravidian in its origin, Kannada has been considerably influenced by Sanskrit and even the early literature bears witness to this phenomenon. According to some scholars the language flowered into literature as early as the 5th century AD. Nripatunga of the late 9th century refers in his work *Kavirajamarga* to a number of predecessors who wrote prose and verse. There were also important works on grammar and rhetoric. Though Sanskrit had a hold on the people as a religious and fashionable language, Nripatunga voiced the glories of his mother tongue.

Works based on or inspired by Sanskrit epics such as the *Mahabharata* and the *Ramayana* formed the earliest literature in Kanada. The three gems of early Kannada poetry, Pampa, Ranna and Ponna (all born in the 10th century), rendered the epics in Kannada. The early writers were also promoters of the Champu style and some of them have written about Jaina Tirthankaras.

Kesiraja's *Sabdamani darpana* (c. 1260 AD) is the first standard grammar of the Kannada language. Nagavarma II has written three works on language, literature and grammar, viz. *Kavyalokana*, *Bhasha bhushana* (in Sanskrit) and *Vastukosha*, a Sanskrit-Kannada glossary.

A great change took place in Kannada literature when Basaveswara (12th century) introduced the *Vachana* style of writing which caused a social revolution. *Vachanas*, or sayings, are simple in style, prose in construction, with a sort of rhyme, but pithy and proverb-like. The imagery in it belongs to the daily life of the ordinary man. This was imitated by other writers not only in Kannada, but in Telugu as well. Dignity of labour and equality of all members of the society were the cardinal points of the Basaveswara movement.

Other important poets of the era are Harihara, Raghavanka, Rudrabhatta and Janna. Kumara Vyasa (15th century) comes a little later. His epic Kannada Bharata is very well known. Actually Pampa and Kumara Vyasa are the giant genius figures in Kannada literature. We may

also mention in passing the names of three more great poets. Lakshmis (c. 1550), Sarvajna (c. 1600) and Sankaradeva (c. 1655). Jains, Virasaivas and Brahmanas have produced works on their respective religions and on various secular themes.

After a less fertile interregnum, we come to the period of Renaissance and the Independence era. Two trends are witnessed during this period almost simultaneously, the absorption of western ideas and a patriotic rediscovery of the past. Historians divide the modern period as follows: (i) 1850-1920: the period of cultural awakening; (ii) 1920-50: the period of great political struggle and also a reaction to it in the form of social realism; (iii) 1950-70: the period of disillusionment and of experimentation; (iv) 1970 onwards: the transitional period of political uncertainties.

The great writers of cultural awakening are B.M. Srikantaiah (1884-1946) and M. Govinda Pai (1883-1963). Srikantaiah's *Inglis Gitagalu* (Songs from English, 1921) marks a turning point in verse composition. The poets of stature who followed are K.V. Puttappa (b. 1904) whose *Ramayanadarsanam* has been acknowledged as a modern classic and D.R. Bendre (1896), a great lyricist, both of them have won the Jnanpith Award.

Two novelists who won the same award are Masti Venkatesh Iyengar (1891-1986) and K. Sivaram Karanth (b. 1902). Karanth's *Chomana Dudi* presents the tragic plight of a Harijan in contemporary society and his *Marali Mannige* (Back to the Soil) is an outstanding regional novel translated into many languages. Masti is considered the father of Kannada short story. Among the modern dramatists the tall figures are Adya Rangacharya and T.P. Kailasam. One notable feature as far as modern Kannada literature is concerned is that there are quite a few writers who have made a mark in more than one field: A.N. Krishna Rao (poet and novelist), V.K. Gokak (poet and novelist), Gopalakrishna Adiga (poet and essayist) and R.S. Mugali (poet and historian) are writers of repute. Kannada is flourishing in almost all branches of literature, and modernity is noticeable in various phases: pragatishila, *Navodaya* and *Navya*. The most

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important writers of the contemporary period are P. Lankesh, Nissar Ahmed, Girish Karnad, Chandrasekhar Kombar and U. R. Anantha Murthy.

Kashmiri

Kashmiri separated from the parental *Apabhramsa* stock around the 10th century AD. By oral tradition the language has transmitted a good deal of folk items. Sanskrit flourished along with the prakrit of the area. Some historians consider the *Brihatkatha* in Sanskrit as an adaptation made from the mother tongue of Kashmiris.

The beginnings of Kashmiri poetry is an extension of the Saiva texts in Sanskrit like *Tantrasara* (11th century) by Abhinavagupta. The Saiva siddhas wanted to propagate their views and beliefs. During the 14th century two different religious traditions came face to face in Kashmir. By that time *Saiva darsana* had assimilated Buddhist as well as Vaishnavistic strands in it.

The tradition of Islamic faith from central Asian areas also came to Kashmir by that time. Nunda Rishi, the great poet was a product of this blended religio-cultural heritage. Persian continued as the official language for over 600 years. Consequently Kashmiri was cultivated only as the medium of low-brow expression. Later in point of time, Urdu poetry exerted its own influence on Kashmiri.

The following technical terms, for literary genres in Kashmiri will indicate the nature of influence on Kashmiri verse: 1. *Vak* (from Sanskrit) is a metrical utterance with a spiritual content. 2. *Sruk* from Sanskrit *sloka* is akin to *vak* applied to the Sufistic context. 3. *Paband* (from Sanskrit *Prabandha*) is a cantoed composition. 4. *Vatsun* (from Sanskrit *vacana*) is song with a refrain.

There are five varieties of *Vatsun*. *Masnavi* taken from the Persian tradition is a couplet form with rhyme. It is either a praise of God or a panegyric addressed to a royal patron. In addition we have *Lila*, *Pad*, *Dastan*, *Marsi* and *Ghazal* showing the many varieties of verse composition. This fertile period from 1200 to

1900 AD is usually divided into 5 phases.

In the beginning of the modern period the pioneering poet was Mahjur (1885-1952). His ghazals are well known. Zinda Kaul Masterji (1886-1966) is another outstanding poet of modern Kashmir. The influence of the West is clear in later periods. This is particularly so when drama and prose literature are taken up for consideration. Kashmiri has a fairly long tradition of poetic compositions, but its prose is very recent.

Urdu is the official language of the state of Jammu & Kashmir and the educated people cultivated competence in that language. Kashmiri fiction originated with the progressive movement of the forties. And important writers, like Akhtar Mohi-ud Din (b. 1928), Mohammed Amin Kamil (b. 1924) and Ali Mohammad Lone (b. 1926) actually switched over from Urdu to Kashmiri. *Doed-Dog* (Pain and Anguish) by Aktar, *Gati Mans Gash* (Daylight in the Dark) by Amin and *Asi Ti Chi Insan* (We too are Human) by Ali are considered to be outstanding novels in Kashmiri. The script used by Kashmiri is such that printing is made difficult. This has to some extent retarded the progress of prose-writings and its popularisation.

Konkani

Though Konkani is an independent language, in many respects it is close to Marathi; and Hindi. Thus its natural script is Devanagari though Kannada, Malayalam and Roman scripts have also been in use depending on circumstances.

Konkani developed an indigenous literature long before the Portuguese conquest, but much of it has been lost. The Konkani poets of the traditional type made the devotional works of the Maratha Brahmins their own. Tales of the *Ramayana* and the *Mahabharata* are preserved in the Roman script. Krishnadas Sharma (16th century) had done the translation from the Marathi original.

Father Joachim de Miranda (18th century) is the author of the largest Konkani hymn *Riglo Jesu Mollantum* (the Resurrection of Jesus). Another important work *Papience Xerathini* (Protector of Sinners) is by Dona Barreto. A considerable amount of Christian literature was written in Konkani during the 17th century.

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoi Goembab (1877-1946) was the main inspiration. Among the modern poets, special mention may be made of B. Borkar (b. 1910), M. Sardesai (b. 1925), and R.V. Pandit (b. 1917).

The modern creative phase of Konkani literature began during the 20th century. The genius of Shenoi Goembab was the main inspiration. There are quite a few writers who are very popular.

Borkar writes in Marathi too. Even in his first collection of 40 Konkani poems *Paimzonam* (Anklets) one notices the variety of themes and techniques employed by him.

Konkani plays, particularly of the folk variety, are quite popular. Fiction is gaining ground in the contemporary period. The important novelists are Reginaldo Fernandez, M. Sardesai and V. J. P. Saldhana. Journalism is developing fast which also means the Konkani prose is coming into its own.

Though Goa is the place where Konkani live in large numbers, strong groups are found particularly in Mangalore, Bombay and Kerala. Literature is being produced in all these areas in a limited way. In the last quarter of a century, however, Konkani literature is finding its place in the main stream of Indian literature and also sharing its heritage with sister languages.

Maithili

The present day Maithili speaking area is about 30,000 square miles in extent. The first important literary work is a collection of Buddhist mystic songs called *Caryapadas* (8th to 11th century). In the age of Jyotirishwara (c. 1300-1400) Maithili literature flourished. He himself contributed several works in poetry, drama and prose. His most famous work is the play, *Dhurttasama-gama*. Vidyapati (1360-1448) was patronised by several kings and queens. He wrote of love and separation, of nature, of devotion to Ganges, Krishna. Siva, Sakti and of birth and death. The next stage in the development of Maithili literature was the rise of medieval drama. Nandipati's *Srikrishnakelimala*, Upadhyaya's *Parijata-harana* and Ratnapani's (c. 1850) *Ushaharana* are outstanding works.

Coming to the modern period, we have quite a few poets, novelists and prose writers who are very popular. Some important names are Manabodha, Vaidyanatha, Parameswara Jha, Harimohana Jha, Kumara Gangananda Sinha, Mayananda, Lalita, Dharendra, Ramananda Renu and Somadeva.

Harimohan Jha, a versatile writer, is the author of *Kanyadan* (1929-33) which is considered the most outstanding novel in Maithili. It deals with the plight of an un-educated girl married to a westernized young man. He is also the author of several short stories and plays, long and short. Other fictionists of note are Yoganand Jha, Upendra Jha, Manindra Narayan Choudhure and Mayanand Mishra. Among playwrights, the names Mahendra Malargia, S. S. Choudhuri, Kumar Akku and Ramdev Jha deserve mention.

Malayalam

The early period of Malayalam literature consists of a triple stream. (i) The Pacha-Malayalam stream, by which we mean literary expression in pure Malayalam without any admixture, (ii) The Tamil stream and (iii) the Sanskrit stream. The first stream consists of ballads and folk-songs, which are difficult to date. Songs connected with religious rites such as *Bhadrakali Pattu*, *Thiyattupattu*, *Sastrakali*, *Thottampattu* and later in point of time, *Margamkalippattu* are important varieties. Then we have festival songs like *Onappattu* and *Krishipattu* and ballads of North Malabar and South Malabar.

In the Tamil stream (pattu school) the most outstanding work is *Ramacharitam* (12th century AD) composed in a language which is a mixture of Tamil and Malayalam. The mixing happens in the area of grammar as well. The author is one Chiraman and only *Yuddha kanda* has been taken up by the poet. After this magnificent long poem, we have the works of Niranam poets, *Kannasa Ramayanam*, *Bhagavad Gita* and *Bharatamala*. As compared to *Ramacharitam* the Tamil influence in these works is much less. The Niranam poets (Kannassan group) were great scholars and literary luminaries.

Sanskrit language and literature had a pre-dominant influence on the native language of Kerala. It has resulted in a peculiar variety of literary dialect called *manipravalam* and hence this stream is also referred to by this name. *Lilatilakam* (14th century) is the earliest book dealing with certain aspects of Malayalam grammar devoting most of its space to the grammar and rhetoric of Manipravala compositions. Such compositions come under two main literary forms, *Sandesha Kavyas* and *Champus*.

Among the many *Sandesha* (message) poems, the most outstanding is *Unnunili Sandesam* (14th cent.) whose authorship is unknown. The most well known early *Champus* are *Unniyatcharitam* and *Unnichirutevi charitam*. The three streams were influencing each other and by about the 15th century, we have a great poem titled *Krishna gatha* composed in a

The missionaries tried to popularise colloquial idiom in Malayalam. Poetry got a new dimension (lyrics, odes, etc.) and prose got new literary genres. Western influence reflects in creative writing.

blended dignified style, neither too high-brow nor too low-brow. Cherussery Nambudiri is the author of this long poem on Krishna. Throughout the whole range of Malayalam literature there is no personality who could come anywhere near Ezhuthachan (16th Century) in the grandeur of poetic quality. His *Adhyatma Ramayanam*, *Bharatam* and *Bhagawatam* are the greatest classics in the Malayalam language. *Kilippattu* is the name given to the form of verse he has made popular. The *Pattu* (song) of the *Kili* means parrot song and in this literary form Ezhuthachan has made use of a style which has set the standards for all time. His *Ramayana* and *Mahabharata* are great *Bhakti* poems in the language. Till about the 18th cent. *Kilippattu*, *Champu* and *Sandesha* kavya compositions had been produced by many a poet in Kerala.

Coming to the 18th cent. we have *Atta-kkatha* and *Thullal* compositions which have enriched Malayalam verse in a significant way. *Attakkatha* is the literature form used for the well known *Kathakali* performance. *Ramanattam* by Kottarakkara Thampuran is the first full-fledged

Attakkatha. The great masters of this literary form are Kottayathu Thampuran (*Baka vadham*, *Kalakeya vadham*, etc.) Unnayi Variyar (*Nalacharitham—four days*) and Erayimman Thampi (*Uttaraswayamvaram*, *Dakshayagam* etc.)

Thullal is a more popular art-form and it has a considerable amount of good literature. This branch of literature is associated with the name of Kunchan Nambiyar who is its unrivalled master. He has about 45 *Thullal* pieces to his credit. The puranic theme he selects for his compositions are but pegs to hang his social

criticism and his poetry brims with humour and satire. *Thullal* has great mass appeal.

Malayalam can claim to have a fairly long history of prose writings. *Anthasastra* has been adapted into Malayalam prose around the 13th cent. Then we have *Attaprakaram*, *Kramadeepika* and *Dutavakyam* assigned to the period between 14th and 17th cent. *Varthamana pusthakam* by Paremmakal Thoma Kattanar is a travelogue written about a journey to Rome (1776-86) in simple Malayalam. This is said to be the earliest

travelogue written in any Indian language.

By mid-19th cent. we have missionaries like Bailey and Gundert compiling dictionaries, writing grammars and arranging translation of the Bible into Malayalam. The missionaries tried to popularise the colloquial idiom. Towards the end of the century, western impact finds expression in creative writing. While poetry gets a new dimension (lyrics, odes, etc.) new literary genres get established in prose.

Poets and scholars like Kerala Varma and Rajaraja Varma paved the way for an abiding renaissance in literature. Chandu Menon's social novels (*Indulekha* and *Sarada*) and C. V. Raman Pillai's historical novels (*Marthanda Varma*, *Ramaraja Bahadur* and *Dharmaraja*) are considered outstanding classics in the language. The contribution of the great trio Kumaran Asan, Vallathol Narayana Menon and Ulloor S. Parameswara Iyer has enriched Malayalam literature with their writings in verse and prose. This is considered the golden period in modern poetry.

Coming down to recent times we have poets like G. Sankara Kurup, who won the first Jnanpith Award and Changampuzha Krishna Pillai, Vailoppilli Sreedhara Menon, N. V. Krishna Warriar, O. N. V. Kurup, Vayalar, Rama Varma etc., as also fiction writers like Kesavadev, Thakazhi (who also has won the Jnanpith Award), Muhammed Basheer, Ponkunnam Varki, S. K. Pottekkad, (also a Jnanpith Award winner), P. C. Kuttikrishnan, Karoor, Kovoov, K. Surendran, Parappurathu, O. V. Vijayan and M. T. Vasudevan Nair; playwrights like E. V. Krishna Pillai, N. Krishna Pillai, Thoppil Bhasi, N. N. Pillai, T. N. Gopinathan Nair, K. T. Muhammad, C. J. Thomas, G. Sankara Pillai, and critics like P. K. Narayana Pillai, Kuttikrishna Marar, M. P. Paul, Mundassery, M. Govindan, S. Guptan Nair, M. Krishnan Nair and lots of others in all branches of literature too numerous to mention. And when one comes to the recent period, there are many writers who have made worthwhile contributions in all branches of writing.

Manipuri

Manipuri is a Tibeto-Burmese language. It is an amalgam of seven dialects spoken by seven clans. The language has a script of its own. The history of Manipuri literature is divided into three periods: the Ancient Period from 33 A.D. to the end of the 17th century, the Middle Period from the beginning of the 18th century till the middle of the 19th century and the Modern Period from mid 19th century onwards.

Manipuri has a rich tradition of folk literature. As a matter of fact, the bulk of Manipuri literature down to the 19th century was folk in

Manipuri has a rich tradition of folk literature. As a matter of fact, the bulk of Manipuri literature down to the 19th century was folk in content and style. The folk literature consists of folk-songs, ballads and folk-tales.

tent and style. The folk literature consists of songs, ballads and folk-tales. It is extremely difficult to date books and assign them to years. The *Kumbaba* is a royal chronicle of Manipuri. It contains records from 33 A.D. when Changba ascended the throne. Certain important prose works are *Numit Kappa* (Shooting the arrow, c. 10th century), *Naotinkhon Phambal Kaba* (between 1576 and 1697), *Lethak Lekharol* and *Moibi Khongul*, both of 17th century. The ancient Manipuri style is ornate and verbose. Specimens of traditional poetry are to be found in the translation and adaptations of Indian classics. The best specimen is *Hijan Hirao* (Royal Boat). In this poem, human qualities are attributed to animate objects and nature. *Ram Angaba* (Death of Rama) by Labanga Singh (18th century) describes the death of Rama in beautiful Manipuri.

Modern Manipuri poetry is recent in the sense that it had to wait till the second decade of this century to get a form. *Le Paren* (Garland, 1909) by Kamal Singh is an outstanding work. O. Singha (1907-44) is a composer of epic poetry in Manipuri. His *Kamsa Badha* (1942) is a notable work. There are also experimental poems composed after 1947, interesting dramas, but a dozen readable novels and some short stories of worth in Manipuri.

The first modern Manipuri novel is *Madhabi* (1930) by Kamal Singh. It is a novel with a social message. There are a few other novels like this worthy of note. Poetry and drama also flourished in Manipuri in a limited way. The tensions witnessed by Manipuri after Independence find reflection in contemporary literature.

Marathi

Marathi language was derived from Maharashtri Apabhramsa. The history of Marathi literature can be divided into six periods.

1. The Yadava period 1189-1320 A.D.
2. The Bahamani period 1320-1600 A.D.
3. The Maratha period 1600-1700 A.D.
4. The Peshwa period 1700-1850 A.D.
5. The British period 1850-1947
6. Contemporary period since 1947.

During the first two periods, Marathi literary genius occupied itself chiefly with religious and philosophical exposition chiefly in verse. *Viveka* (Sea of Philosophy) by Mukundaraj, a disciple of Natha Pantha is accepted as the first original work. The origin of Marathi prose is also to be found in the Yadava period. The credit goes to another religious sect called the Hanubhavas. They eschewed Sanskrit deliberately and made Marathi a vehicle for the propagation of religion and culture. However, influence of Sanskrit is seen in the acceptance of literary forms and theories.

An extremely effective revolt against Hindu orthodoxy came from Jnanadeva. *Jnanesvari* (a commentary on *Bhagavat Gita* and *Amritanubhava* (A Nectar of Experience) are his two masterpieces. Sainly singers sprang up in all castes and communities. Namdeva, who was a tailor became a disciple of Jnanadev (Jnaneswar). He became a great poet propagating a devotional cult called Varkari Panth, Gardeners, potters, goldsmiths and such other people extolled Bhagawat Dharma in acceptable verse.

In the Bahamani period, conversion to Islam took place on a mass scale. The flame of Hindu religion, however, was kept up with considerable zeal. The works of Ekanath are to be specially remembered in this connection. He was a great saint and social reformer. His *Bhavartha Ramayana* brought the message of Bhagawat cult to the people with great power. Jainism too enriched Marathi in this age.

When we pass on to the third period, the most notable aspect is the contribution of Christian missionaries in Goa. Father Sephens (1549-1619) who came to India, studied Marathi language so well that he could compose charming verses in it. His *Krista purana* is considered a classic on the model of *Jnanesvari*.

The dawn of 17th century was most eventful in the political and literary history of Maharashtra. Tukaram (1608-49), the greatest saint poet of the language, contributed in such measure to devotional poetry that he is remembered with great veneration even today. A *Sudra* by birth, he wrote 3000 *abhangas*. Their appeal is timeless. He was followed by Ramadas.

Coming to the Peshwa period, Krishnadayarnava and Shridhar are the leading poets. New literary forms were successfully experimented with during the period and classical styles were revived, especially the *Mahakavya* and *Prabandha* forms. A period of transition followed in the first half of the 19th century. In 1818 Maharashtra lost its freedom to the British. Keshavsut, the father of modern Marathi poetry, published his first poem in 1885. The years in between witnessed a great change in the literary scene. In fact, modern

Marathi has a flourishing contemporary literature in every branch of verse and prose. Some of its plays have earned a reputation beyond the borders of Maharashtra during the last quarter of the century.

Marathi literature took shape during this period.

As in other Indian languages, the Christian missionaries played an important role in the production of scientific dictionaries and grammars. Periodicals slowly became popular, starting with *Digdarsan* in 1840. About the same time *Darpan*, the daily newspaper, also came into being. Modern Marathi prose flourished through various new literary forms like the essay, the biography, the novel, the short story, the prose drama, etc.

The brightest star of modern Oriya literature is Fakir Mohan Senapathi. He was a poet, novelist, administrator, social reformer, printer, businessman and patriot, all rolled into one.

Chiplunkar's *Nibandhamala* (essays), N.C. Kelkar's biographical writings, the novels of Hari Narayanan Apte, Phadke and V.S. Khandekar, and plays of Mama Warerkar and Kirloskar are particularly worth noting. Apte's novel *Pan Lakshat Kon Ghetu* which deals with the poignant experience of a child-widow has been translated into many Indian languages.

Similarly Khandekar's *Yayati* which has won for him the Jnanpith Award is a very noteworthy novel. Vijay Tendulkar and C.T. Dhanolkar have written and produced a good number of plays

which have earned a reputation beyond the borders of Maharashtra during the last quarter of a century. B.S. Mardhekar wrote the first stream of consciousness novel in Marathi viz. *Ratricha Diwas* (1942) and it was a great success. *Ratha Chakra* (chariot wheel, 1962) by S.N. Pendse explores the relationship between physical environment and mental life. The Marathi stage had a rejuvenation after 1945.

Generally speaking Marathi has a flourishing contemporary literature in every branch of verse and prose.

Nepali

The Nepali language belongs to the Indo Aryan family. It has descended from the Khas prakrit. Nepali is fairly rich in folk literature. Its traditional poetry has come to shape only in the 18th century. Subananda Das was one of the recognised poets of the early period. He was followed by Shakti Ballav Aryal and Udayanand Aryal.

Most of the writers of this period were well-

versed in Sanskrit and hence Sanskrit patterns were approved for Nepali compositions. *Gopastuti* and *Srimad Bhagawat* were translated into Nepali. Basant Sharma's *Krishna Charita* is regarded as the first *khandakavya*. Bhanubhakta translated *Adhyatma Ramayanam* into Nepali (1841-68). Motiram Bhatta, Lekhnath and Balakrishna Sama are important poets of the modern period.

In Drama, Novel and Short Story, Nepali claims for sizeable contributions. Among playwrights the more important names are S. Aryal and Balakrishna Sama, and among novelists Pratiman Lama, Rudraraj Pandey and Sh. Kumar Rai. Parasmani Pradhan is a good prose writer and researcher.

Oriya

Of all the north Indian languages, Oriya happens to be the least affected by Perso-Arabic influence and is nearest to the original Sanskrit. However, its literature sprouted in the language of the people expressing their dreams, thoughts and experiences. Though some scholars trace the origin of Oriya literature to the 9th c. A.D., the language flows into a regular stream of poetry only by the 13th century. In the four hundred years, we notice a reflection of different religious faiths, Buddhism, Sainavism, Shaktism and Vaishnavism (with twin branches of Rama cult and Krishna cult). We also find a considerable amount of folk literature.

Sarala Das of the 14th century is the Vyasa of Orissa. Strangely enough, this semi-literate became a leading poet of the language. His name was Sidheswar Parida, but he adopted the name as he considered himself the Das (servant) of the deity, Sarala Devi. The quality and fervour of his devotion is exemplified in the manner in which he has adapted the *Mahabharata*, *Vilanka Ramayan* and *Chandipurana* are well known. Sarala Das is followed by a group of scholar-poets who deliberately eschewed Sanskrit and wrote in simple Oriya to serve the masses. They are Balarama Das (*Oriya Ramayan* and *Mahabharata*), Jagannatha Das (*Bhagavat Purana*), Anant Das, Yosowant Das and Achyutanand Das.

About the end of the 15th century and the beginning of the 16th, the influence of Chaitanya and Jayadeva was dominant on Oriya literature. This continued in different ways for about four centuries. The philosophy of Chaitanya and the poetry of Jayadeva changed the pattern of classification in Oriya. Upendra Bhanja is the outstanding poet of this new emphasis on erotic description and play of words, Upper Oriya is specially noted.

Vaishnavism propagated by the Chaitanya

ol produced welcome results in literature. Lyrical poet Baladeva Rath, Dina Krushna and Bhaktacharan Das are other outstanding poets. Later in period of time we may remember the lyrical singer Gopal Krishna and blind poet Bhima Bhoi.

Prose was practically born in the British Period, and it developed with amazing rapidity. They found new ways of expression, and new genres covering political, social and patriotic movements were handled by poets, novelists and playwrights. In modern Oriya literature, the brightest star is Fakir Mohan Senapati (1843-1918). He was poet, novelist, administrator, social reformer, printer, businessman and patriot, all rolled into one. Strange to say, he had only two year's formal education.

He undertook literal translation of the *Ramayana* and the *Mahabharata* into Oriya. His selection of stories and a novel *Chaman Atha* are particularly well known. This novel is a masterpiece of realistic fiction, depicting the victimization of innocent weavers. Next to Senapati comes poet Radhanath whose magnum opus is the epic *Mahayatra*, written in blank verse on Miltonic lines. Other distinguished poets of the modern period are Gopabandhu, Baikunthanath Patnaik, Kalindicharan Panigrahi, Mayadhar Mansinha and Guruprasad Panty. Kalindicharan Panigrahi's *Matira* (Nectar) and Gopinath Mohanty's *Amritara Santan* (Sons of Nectar) have been translated into other languages. Mohanty has specialized in dealing with tribal life. His *Mati Matala* (The Fertile Soil, 1944) has won the Jnanpith Award. Among the outstanding playwrights we may mention the names of Manoranjan Das, Bijaya Kumar Mishra and Biswajit Das.

Punjabi

Punjabi emerged as an independent language in the 11th century from the Sauraseni *Bhramsa*, according to many scholars, though Paisachi also has contributed to its development in the modern form. The rise of present day Punjabi has been parallel with the evolution of the Gurmukhi script, evolved by Sikh gurus.

Punjabi literature was the natural successor of Indic and Arabic-Persian literatures and *Bhramsa* literature which contained dramas, stories and narrative poems. Punjabi poetry dates back to the beginning of the 13th century when Baba Farid composed his *Sloks* and hymns. Though he was a Muslim mystic, he adopted the Indian literary tradition. Guru Nanak led in Punjabi history was, in a way, a period of literary renaissance.

The literature of pre-Nanak period can be

linked to the tradition of the Gorakpanthis who composed *sloks* and *padas*. Another poetic genre which was popular then is called *Var*, which sings the praise of great warriors and kings. Amir Khusrau (1253-1325) has composed a *Var* on Tuglak Shah.

The golden period of Punjabi literature extends from the birth of Guru Nanak (1469) to the passing away of Guru Gobind Singh (1708). Most of the religious and mystic poetry of this period is preserved in the *Adi Granth* (the first book), a great anthology of *Bhakti* poems, which is considered a sacred scripture by the Sikhs. In it, a major portion of poetry is arranged in different *ragas* and is thus meant to be sung.

The tradition of *Sufi* and *Qissa* poetry had its influence on Punjabi poetry. Bulhe Shah and Waris Shah composed exquisite verses in the above genres. The best in Sanskrit literature was also imbibed through translation spread over 200 years (1600 to 1800) covering the two epics, the *Ramayana* and the *Mahabharata* as also *Bhagavat Gita* and *Upanishads*.

When we come to the modern age (1850-onwards) we have to remember first the contributions of Attar Singh. The Ludhiana Christian Mission brought out a translation of the Bible in Punjabi in 1852, and a dictionary of Punjabi language in 1854. The Punjabi paper *Khalsa Samachar* was started from Amritsar.

A very important personality of Punjabi renaissance is Bhai Vir Singh (1872-1957). His religious epics, lyrics and nature poetry show clear signs of western influence. He is the harbinger of modernity in Punjabi literature. Puran Singh and Kripa Singh are his distinguished contemporaries. The leading poets of nationalism in Punjabi are Gurmukh Singh Musafir (1899-1976) and Hira Singh Dard (1889-1964). We have also literature of the progressive trend in ample measure both in poetry and prose. Among the outstanding modern poets mention may be made of Mohan Singh (1905-78), Amrita Pritam (b. 1919) and Harbhajan Singh (b. 1920).

Amrita Pritam has won the Jnanpith Award. Gurubaksh Singh Preet Lari, Harcharan Singh, Sant Singh Sekhom and Gurdial Singh Khosla among, playwrights, Bhai Vir Singh, Nanak Singh,

The golden period of Punjabi literature extends from the birth of Guru Nanak to the passing away of Guru Gobind Singh. Most of the religious and mystic poetry of this period is preserved in the Adigranth.

S.S. Narula, K.S. Duggal and Amrita Pritam among fiction writers are noteworthy names in Punjabi. There were interesting experiments in intellectual and aesthetic poetry, the former being represented by Pritam Singh Safer and the latter by Harbhajan Singh. Prabhjot Kaur was Punjab's state poet for many years.

Rajasthani

Rajasthani is an Indo-Aryan language having its roots in Vedic Sanskrit and Sauraseni Prakrit. Its script is Devanagari. It has a fund of folk literature consisting of ballads, songs, proverbs, folk tales and panegyrics.

Historians have divided traditional poetry into two periods: the early period starting from 1050 A.D. and ending with 1450 and the second (medieval) period from 1450 to 1850. Thereafter it is modern poetry. That early period abounds in Jain poetry. The richest period for poetry and prose compositions is the next period.

All the masterpieces of traditional poetry are products of this period. Besides a great many full-length poetic works dealing with wars, mythological events and devotional themes, several *Duhas* and *Gitas* (a kind of metre) have been composed on all kinds of subjects. Padmanabha, Vihu Sujo, Aluj are a few of the important composers of the period.

Modern poetry starts from the forties of this century. This reflects the impact of western culture. The first book of modern poetry is *Badli* (Cloud) by Chandra Singh (b. 1912). It describes the joys and

sorrows of rain in the desert. N. R. Sanskarta,

N. S. Bhatti, R. Kalpit and G. L. Vyas are important modern poets.

Mention may also be made of Vijaya Dan Detha and Rewat Dan Charan whose contribution to modern Rajasthani literature is considerable.

Drama and novel have not flourished well in Rajasthan; but short stories (known as *vat*) are many and of a high standard. M. D. Vyas pioneered the modern short story with his *Varasganth* (The Birth Day, 1956).

Sanskrit

The beginnings of Sanskrit literature may be traced back to Rigvedic poetry (1500-1200 B.C.) which can be regarded as religious in character only in the widest sense of the term. Rigvedic poetry contains all the aspects which are found in a *kavya* by way of themes and style. The Vedas comprise sacred hymns, sacrificial formulae and quite a few hymns which are of a secular character.

Literature produced in the periods that followed was more and more interested in religion and philosophy. Yet in the *Brahma-sutra*, the *Aranyakas* and in the *Upanishads* there are passages which are remarkable for their literary beauty.

Then there was a period commencing in the age of Panini (5th cent. B.C.) when books on ancillary sciences or *vedangas* were written. Panini's *Ashtadhyayi*, Pingala's work on metre, etc. In the third period of Sanskrit poetry known as the Classical period we have the *Mahakavyas*, *Puranas*, *Narrative Poems*, *Prasanga Kavyas*, (adulatory poems) and *Sandeshas* (message poems). The two major epics, the *Mahabharata* of Vyasa and the *Ramayana* of Valmiki are outstanding creations of the Indian poetical genius. They have considerably enriched the life, culture and literature of India.

The theme of the *Mahabharata* (the biggest epic in the world) is the battle between the Kauravas and the Pandavas on the plain of Kurukshetra (100 BC). The *Bhagavadgita* is one of the many episodes in this epic. The *Ramayana* deals with the adventures of Rama in 24 couplets. *Brihatkathamajiri* of Kshemendra and *Kathasaritsagara* of Somadeva are important *Katha* literature. *Panchatantra* is the oldest collection of fables in Sanskrit (4th cent. B.C.).

The *Mahakavyas* which according to the accepted canons should contain majestic descriptions of war, nature and political intrigues are the pride of Sanskrit literature. *Asvaghosa's Buddhacharita* and *Saundarananda's* *Madhucchristi Mahakavyas*, *Kumarasambhava* of Kalidasa deals with the puranic story of the marriage of Parvati and Siva and the birth of Skanda. The poem opens with a scintillating description of the Himalayas.

Raghuvamsha is another *Mahakavya* of Kalidasa where the poet is seen at his best. The poets were guided more by the form than by the spirit behind the form. However, the greatest among them are Bharavi (c. 600), Bhatkhyana (c. 700), Kumaradasa and Magha (c. 700).

Among the message poems it is *Meghaduta* by Kalidasa that has set the pattern. Of the fifty message poems, the more well known are *Sukasandesa*, *Chatakasandesa* and *Ham*

The two major epics in Sanskrit, the Mahabharata of Vyasa and the Ramayana of Valmiki are outstanding creations of the Indian poetical genius.

esa. The *Harshacharita* and *Kadambari* (Bana) are justly regarded as the crowning achievements of Sanskrit prose fiction.

Sanskrit drama has a long history tracing back to Asvaghosha (2nd century A.D.). Only fragments of his three plays are available. A century later we have Bhasa who is ascribed to have written 13 plays (discovered in Trivandrum). The conventions of Sanskrit drama are all observed by Bhasa. Kalidasa is the author of three outstanding plays *Malavikagnimitra*, *Abhijnanasakuntala* and *Vikramorvasiya*. His treatment of the Sakuntala story in particular reveals him as a master of the dramatic art superior to all others in portraying the emotion of love. Sudraka is another important dramatist whose *Mrichcha katika* is well known. Of their successors in this literary form the more important are Visakhadatta, Harsha, Bhavabhuti, Krishnamisra, Rajasekhara and Bodhayana.

There is also an abundance of philosophical and technical literature in Sanskrit. Of these Vedanta was to exert the most profound effect culminating in the writings of Sankara (A.D. 800) leading to further interpretation of Ramanuja and Madhava. In the sphere of domestic and social conduct there evolved a body of literature known as dharmaśāstra.

As regards politics and statecraft Kautilya's *Arthashastra* is well known. Equally known are the mathematical treatises of Aryabhata and Bhaskara and the medical books *Charakasamhita* and *Susruta*.

The Indian tradition of *Kavyasastra* and applied literary criticism is by and large the Sanskrit tradition which almost all the modern Indian languages have adopted.

The great stalwarts Bharata, Dandin, Vamana, Anandavardhana, Kuntaka and Abhinavagupta all belong to the period covering the dark ages of Europe. These theoreticians gave us valuable concepts like *rasa*, *guna*, *riti*, *vakrokti*, *dhwani*, *rasadhwani* and *auchitya*. Bharata's *Natyasastra* is the earliest treatise available on the subject.

Sanskrit continued to be a vehicle of literary expression even in the modern period, though it was less prolific not being a language of the ordinary people. *Mahakavyas* were composed on the Buddha, Christ, Sankaracharya and Narayana guru. There were also long poems on Mahatma Gandhi, Rajendra Prasad, Tagore, Jayadeva and Jawaharlal Nehru. Quite a few books have been translated from languages like Tamil, Telugu, Malayalam etc. into Sanskrit.

Influenced by the languages of the West and by the active modern Indian tongues, Sanskrit writers have written poems, biographies, novels and short stories in the contemporary period. Both in quality and quantity they may not compare favourably with similar writings in

other Indian languages. But the Sanskrit Muse is kept alive by lovers of the language.

Sindhi

The origin and ancestry of the Sindhi language are disputed by scholars even today. Many scholars hold the view that Sindhi belongs to the ancient languages of the Indus valley prior to the period of Sanskrit. Even in the matter of script, there has been considerable change. The new Perso-Arabic script was approved only in 1853.

The early poetry in Sindhi was based on local romantic tales. The early poems called *Gahun* were not recorded but handed down by word of mouth. Pir Sadruddin (1290-1409), an Islamic missionary, is considered the pioneer of Sindhi religious poetry.

The first great Sufi poet is Qazi Qazan (c. 1465-1551). His seven verses have been preserved. He was influenced by Bhakti Kavya movement of North India. Second only to Qazan is Shah Karim (1637-1623) whose verses are imbued with mystic thought.

What is important to note in the early Sindhi poetry is the fusion of the Islamic and Hindu thoughts and beliefs. Along with Qazan another major poet Miyun Shah Inat (1625-1713) has composed poems in the classical idiom, yet heralding a new era in Sindhi poetry.

The premier poet of Sindhi, however, is Shah Abdul Latif Bhitai (1689-1752). His collection of poems titled *Rasalo* (Message, 1866) is an expression of high thoughts with great artistry. He provides a varied fare in his poems. We have also other important poets like Rohal (1734-1804), Chainrai Sami and Dalpat (1769-1841) who were Vedantists and others who wrote religious poetry of Hindus and Christians.

Coming to modern times, we have poets who followed the Persian poetical forms like *ghazals*, *qasidas*, *rubais* and *masthnavis*.

Among them the most important are Gul Mohamad Gul, Muhammad Qasim, Muhammad Fazil Shah, Hafiz Hamid and Mirza Qalich Beg. Freedom movement came to Sindh soon after the partition of Bengal. Lalchand Amardinomal

The early Sindhi poetry is the fusion of the Islamic and Hindu thoughts and beliefs. The modern poets follow the Persian poetical forms like ghazals, qasidas, rubais and masthnavis.

was the champion of the national movement among the writers. Poets and prose writers gave expression to nationalism and progressivism as in other Indian languages.

Mirza Qalich Beg (1853-1929) was the most prolific and versatile writer Sind has produced. He has about 350 titles to his credit, originals and translations. His *Zinat* (Heroine's name, 1890) is the first Sindhi novel of merit. Other important novelists are Lalchand Amardinomal, Bherumal Meharchand, Ram Panjwani, Gobind Malhi, L. H. Ajwani and Krishin Khatwani.

While Bengal and Punjab retained some of their parts in India, after partition, the whole of Sindh was lost to Pakistan. The Sindhis in India now live in various parts of India and this is handicap for their literary progress. However, the Sindhis are doing fairly well in the literature of contemporary India.

Tamil

Tamil language has the special claim of being at once classical like Sanskrit, Greek or Latin, and vigorous and modern like the modern Indian languages. Its history can be traced back to the age of *Tolkappiyam* the earliest extant Tamil grammar generally ascribed to 500 B.C. Among the Dravidian languages it is least influenced by Sanskrit, though there is a certain degree of influence.

Subramania Bharati is the greatest poet of modern Tamil. His patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and fundamental equality are his themes.

The earliest extant literature of the Tamils is called Sangam literature and it is dated between 500 B.C. and 200 A.D. Though a considerable part of the early poetry has been lost, some of the bards and patrons decided to preserve a part of it in certain anthologies (about 4th century A.D.). These are the Ten Idylls (*Pattuppattu*) and the Eight Anthologies (*Ettutthai*). Four hundred and seventy three poets, of whom thirty are women, have been identified. These are mainly classified into two. *Akam* or esoteric dealing with love and *Puram* or exoteric dealing with war.

In this period, Tamil literature was considerably bound by literary conventions. The poets were keen on keeping up the tradition. The land was treated as five regions viz. mountains, forests, fields, coasts and deserts and the theme

of love in five aspects viz. union, patient sulking, wailing and separation. The poet dealing with a certain aspect of love restricted himself to a particular region, season, horoscope, flora and fauna. These literary conventions are explained in *Tolkappiyam*.

Purananuru is 400 verses on *Puram* themes. It serves as a window on the Tamil people 2000 years ago. *Agananuru* is 400 poems on love themes. The length of these poems varies from 13 to 37 lines. There are other collections like *Natrinai*, *Kuruntogai*, *Ain-kurunuru*, *Paripadal* etc. which are quite well known.

Tiruvalluvar's *Tirukkural* is acclaimed to be the greatest Tamil classic. It expresses the most profound thoughts on the many problems of life. Each verse is a couplet composed with great economy of words. The book is divided into 12 chapters each containing 10 verses. The chapters are arranged in three books dealing with virtue, wealth and pleasure.

Round about the 3rd century A.D., Tamil produced two epics *Silappadhikaram* and *Manimekhalai* which are considered twin epics like the *Ramayana* and *Mahabharata*. The author of *Silappadhikaram* was the son of a Chola King Ilango Adikal. The title means the Story of the Anklet and the epic describes the moving story of Kannagi.

Manimekhalai is the daughter of Madhavan and Kovalan, the hero of *Silappadhikaram*. *Kamba Ramayanam* is an immortal classic in Tamil. Though Kamban based his work on the Sanskrit *Ramayana* of Valmiki, his rendering shows that he was a supreme artist. It is different in plot, in construction and in the delineation of character. *Kambaramayanam* runs to 10,368 verses.

Tamil is rich in devotional literature. Nayanmars are the exponents of Saivism and Alvars that of Vaishnavism. Thiru Jnanasambandar, Thirunanukkarasar, Sundarar and Manikkavachakar are the four great Nayanmars. The great Alvars are 12 in number. Kulasekhara Alvar and Andal are specially remembered. There are 5 major *kavyams* and 5 minor *kavyas* in Tamil. Jain and Buddhist works are in abundance in the language.

Coming to the period between 13th & 17th centuries, we notice Muslim and Christian impact on Tamil literature. Umaruppulavar composed a long poem of 5000 verses on the life of prophet Muhammed. The Christian influence began with the Portuguese and continued with the Danes, the Dutch, the French and the British. Beschi, Caldwell, Winslow and P. B. have made significant contributions to Tamil literature. The Italian priest Beschi (1680-1747) composed the magnificent poetical work *Tembavani* (The Insatiable Beauty) on the life of St. Joseph.

edanayagam Pillai and Krishna Pillai are two other Christian poets.

Twentieth century has produced many talented men of letters in various fields, Poetry, Prose, Drama, Novel, Biography, Short Story etc. Mr. Swaminatha Iyer unearthed many literary works and edited them. Swami Vadachalam, Piru V. Kalyanasundera Mudaliar and V. O. Chidambaram Pillai are great writers of the modern period. However, the greatest poet of modern Tamil is Subramania Bharati whose patriotic poems have inspired thousands of readers in his time. Personal freedom, national liberty and the fundamental equality of all men and eloquent expression in his verses. In some of his poems like *Kuyilpattu* (Song of the cuckoo) *Kannanpattu* (Poems on Lord Krishna) and *Panchali Sapatham* (The Vow of Panchali) we notice a religious perception at work.

Rajam Ayyar, Madha-vayya, Pudumaipithan, Kuppa, Rajagopalan and Kalki Krishnamoorthy have contributed much to the field of Tamil fiction. These writers along with Bharati ushered in the new epoch of renaissance in Tamil literature.

In the post-Independence period several writers have come to the fore. Among poets, the names of Kulothungan, Ka-Na Subramanyam and C. S. Chellappa may be mentioned. And in fiction the outstanding names are Akilan, Jayakanthan, Neela Padmanabhan, Chandraramaswamy, Ashokamitran and Indira Arthasathiyar.

Telugu

Among the Dravidian languages, Telugu exhibits the greatest influence of Sanskrit. Telugu literature is generally divided into six periods. 1. The Pre-Nannaya period (upto 1020 A.D.) 2. The Age of the Puranas (1020-1400). 3. The Age of Srinatha (1400-1510). 4. The Age of the Rabandhas (1510-1600). 5. The Southern period (1600-1820) and 6. The Modern Period. (After 1820).

In the earliest period there are only inscriptions from 575 A.D. onwards. Nannaya's (1022-1063) translation of the Sanskrit *Mahabharata* into Telugu is the first piece of Telugu literature yet discovered. The diction is so masterly that historians think that there must have been earlier works in Telugu. After the death of Nannaya there was a kind of social and religious evolution in the Telugu country.

Virasaivism propagated *bhakti* towards Siva as the only means of attaining salvation. Tikkana (13th cent.) and Yerrana (14th cent.) continued the translation of the *Mahabharata* started by Nannaya. Yerrana was also a devotee of Siva. Quite a few poets continued writing in

Mother's naughty sprite

This is the story of Bubun, or Satyan as he was known to his classmates, a 12-year-old boy of Calcutta who died on February 5, 1995, leaving behind a treasure trove of moving poems and sketches.

Rummaging through Bubun's study table was a revelation to his lawyer father Alope Mitra and other members of the family. The eminent Bengali poet Subhas Mukhopadhyay said the poems were the work of a mature, sensitive and intelligent mind.

"What he has left behind bears ample testimony that he had the potential of growing up to be a promising individual. Beauty, essence and touch were his language to attract everything around him. He had learnt to master words and rhythm," the poet commented.

His book of poems *Sabar Majbe Aami* (I in the midst of everyone) created quite a few ripples in the literary circles of Calcutta. His young mind was full of questions and his heart full of sorrow and anger against all injustice. "The Babri Masjid demolition moved him to tears and he was just nine years old then," said his father.

A collection of the boy's works both in Bengali and English, along with a few of his sketches, was published in April.

Bubun probably had a premonition of death when he wrote, "If I don't come today/my music will remind you,/ if I flee the world/and say goodbye,/ to you all/ my music will remind you.....". His family has plans to set up an orphanage in his memory.

Bubun was gifted with a concern for the poor. The sorrows of the people around touched his heart. He wouldn't wear a new dress for *durgapuja* unless new clothes were given to the needy, his mother, Madhugeeti, reminisces. The year before he died, she bought 15 sets of new dresses to be given away, at the request of her son.

One of Bubun's best poems is the one titled *To My Mother*. He wrote: "If I were a hairpin of gold,/ a bunch of black tresses would/ be my mother./ If I were a pretty butterfly/ a golden lotus is how I'd see her/ If I were a sparkling drop of water/ she'd be a bright green leaf/ If she were a fountain pen of gold,/ I'd be a paper sheet/ Oh mother, I am a naughty sprite/ silenced only by your embrace so/ tight."

Telugu and we come to the age of Srinatha.

During this period some Telugu poets translated Sanskrit poems and dramas while others attempted original narrative poems. The popular Telugu literary form called the *Prabandha* evolved during this period. Srinatha (1365-1441) is the foremost poet who popularised this style of composition (a story in verse having a tight metrical scheme). Srinatha's *Naishadham* is particularly well known.

We may also refer to the *Ramayana* poets. The earliest *Ramayana* in Telugu is generally known as *Ranganatha Ramayana* though authored by Gona Buddha Reddi. Then there are the great religious poets like Potana (1450-1510), Jakkana (second half of 14th century) and Gaurana (first half of 15th century).

The golden period of Telugu literature is the 16th and 17th centuries. Krishnadevaraya's *Amuktamalayada* is regarded as a Mahakavya. Peddana's *Manucharita* is another outstanding Mahakavya. Telugu literature flourished in the south in areas like Madurai, Thanjavoor, etc. and that is why the age itself is called the

Southern Period. We find a comparatively larger number of poets among the rulers, women and non-Brahmans. They popularised the *desi* metres.

With the conquest of Deccan by the Mughals, there was a period of decadence (1750-1850) in literature. Then emerged a period of transition (1850-1910) following a long period of Renaissance. European savants like C. P. Brown played an important role in the develop-

Kanyasulkam (Bride-Money) the first social play in Telugu by Gurajada Appa Rao was a thumping success. We also find the progressive movement, free verse movement and the *Digambari* style finding expression in Telugu verse. The well known modern Telugu novelists are Udayana Lakshminarayana (of *Malappalli* fame), Viswanatha Satyanarayana (*Veyipadagala*), Kutumba Rao and Buchi Babu. Telugu is specially known for its daring experiments in the field of poetry and drama.

Urdu

The grammatical structure of Urdu is based on Western Sauraseni Apabhramsa but its vocabulary, idioms and literary traditions drew heavily from Central Asian, Turkish, and Persian sources. The literary flowering of Urdu does not go farther than the 13th century. Urdu literature developed in the bazaar, the monastery and the *salons*, and all these places had their own characteristic features.

Traditional Urdu poetry comprises a few literary genres that have a definite history and development. They are the *masnavi* (every couplet has a different rhyme), *ghazal* (talks to the tender sex), *gasida* (a genre akin to the ode), *marsia* (elegiac poem), *rekhti* and *nazm*. The early stages of the development of Urdu was two-pronged movement. 1. The saints and mystics made it a vehicle for the propagation of the unity and compromise. 2. The Hindu saints, the *Bhakti* movement under the Islamic influence encouraged the idea of oneness. The literary precedence of the South over the North can only be understood in the historical context.

Sultan Alauddin Khilji invaded the South during 1294-1311 A.D. The cultural confluence was responsible for the production of good literature in the South. The earliest known writer in Deccani Urdu is Shaikh Ganjulilm (b. 139). The next notable figure is Khwaja Banda Nawaz (1320-1422). His *Mirajul Ashiqeen* is a Sufi treatise in prose. Other *masnavi* writers are Mukimi of Bijapur and Ahmed Ajiz.

The Persian tradition has taken root in Urdu poetry in the 17th century. Mulla Wajhi is a great literary figure of this period. His *masnavi*, *Qasida*, *Mustari* (1609) and his rhyming prose allegories *Subhas* (1634) are the gems of Urdu literature produced in the Deccan. When the tradition of the *masnavi* spread to the North, the Deccan language yielded place to the Khariboli or Rekhta or Urdu.

The *masnavi* now yielded place to the *ghazal* which became the most popular form of Urdu poetry. Though *ghazals* were written by many poets like Amir Khusrau, Hashmi and Qutb Shah Wali was the most outstanding. He gave a new

Traditional Urdu poetry made considerable progress in the 18th century under the influence of what is called the Delhi School.

ment of Telugu language and literature. In common with the rest of India, Telugu literature of this period was increasingly influenced by European forms like the novel, the short story, the prose drama, belles lettres, etc.

The father of modern Telugu literature is K. Veeresalingam Pantulu (1848-1919) who wrote a novel, *Rajasekhara Charitamu* inspired by the *Vicar of Wakefield*. He was the first person in modern times to use literature to eradicate social evils. He was followed by Rayaprolu Subba Rao, Gurajada Appa Rao, Viswanatha Satyanarayana, Katuri Venkateswara Rao, Joshua, Devulappalli Venkata Krishna Sastri, Sri Sri, Puttapparthi Narayana Charlu, and others in the sphere of poetry. Viswanath Satyanarayana has won the coveted Jnanpith Award.

Indian Writers in English

Though foreign in its origin, English has been adopted in India as a language of education and literary expression besides being an important medium of communication on a vast scale. Its history in India commences with *Ram Mohan Roy* (1774-1833) campaign for introduction of scientific education in India through the English medium. He could use the English language effectively though he learnt it only after he was 16 years of age. But when *Vivekananda* spoke and wrote in English, Americans described him as a perfect master of the English language.

Among those whose writings in prose are considered as literature the name of *Jawaharlal Nehru* (1889-1964) stands out. He is particularly remembered for his *Glimpses of World History*, *Discovery of India* and *An Autobiography* (1936). *Gandhiji* is reported to have cultivated English carefully. The language became a sharp and strong instrument in his hands. His precision, economy and clarity in the use of English is unequalled. *Nirad Choudhuri* (b. 1897) is an internationally accepted writer of English. His *Autobiography of an Unknown Indian* (1951) is particularly well known.

We have the extraordinary girl *Toru Dutt* (1855-76) who died at 21 leaving some fine poems; and then we have *Sarojini Naidu* (1879-1949) whose romanticism charmed readers in India and Europe. Her *Golden Threshold* (1905), *The Broken Wing* (1917), and *The Sceptered Flute* (1946) are well known. *Aurobindo* (1872-1950) who had his education in Cambridge mastered not only English, Greek and Latin but also French and Italian. No doubt he had his grounding in Bengali and Sanskrit. He was poet, philosopher and sage. For him poetry was a mode of mediation, a dhyamantra. His epic, *Savitri*, is outstanding. His *Life Divine* (2 vols) is equally outstanding from another angle. *Tagore* has written poems in English also, *Gitanjali* in English is his own free rendering of his poems in

Bengali. The lyrical quality of *Gitanjali* is universally accepted.

During the contemporary period, we have quite a few Indians, who write poetry in English. The more well-known among them are *Dom Moraes* (A Beginning), *Nissim Ezekiel* (The Unfurnished Man), *P. Lal*, *A.K. Ramanujan* (whose translations of Tamil classics are internationally known), *Kamala Das*, *Arun Kolatkar* and *R. Parthasarathy*.

In the field of Indian English novel, the three senior writers who began to write in the early thirties are *Mulkraj Anand*, *R.K. Narayan* and *Raja Rao*. British education and mode of writing had a tremendous impact on the writings of Anand (b. 1905). His major novels *Coolie* (1933), *Untouchable* (1935), *The Woman and the Cow* (1960) reveal his concern for the underprivileged in India.

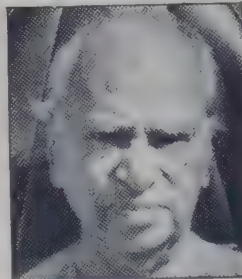
R.K. Narayan has projected *Malgudi* as the locale for most of his stories. He has a keen eye for the comic in the life around him. *Swami and His Friends* (1935), *Bachelor of Arts* (1937), *The Financial Expert* (1952), *The Guide* (1959) and *Waiting for the Mahatma* (1955) are his popular novels. *Raja Rao* (b. 1909) has written only four novels, but he felt the pulse of India better than others. *Kanthapura* (1938), *The Serpent and the Rope* (1960) and *The Cat and Shakespeare* (1965) are significant achievements.

Other novelists of repute are *G.V. Desani*, *M. Ananthanarayanan*, *Bhabani Bhattacharya*, (who died in the U.S. in 1988), *Manohar Malgonkar*, *Arun Joshi*, *Kamala Markandaya*, *Anita Desai*, *Khushwant Singh*, *Nayantara Sahgal*, *O. V. Vijayan* and *Salman Rushdie*. Most of these novelists have written good short stories also. As regards drama and the essay the contribution is not substantial. Among the critics and historians of literature are *K.R. Sreenivasalyengar*, *C.D. Narasimhaiah* and *M.K. Naik*.

Among the latest are: *Vikram Seth* (A Suitable Boy) *Allan Sealy* (The Trotter-Nama), *Sashi Tharoor* (Show Business, The Great Indian Novel), *Amitav Ghosh* (Circle of Reason, Shadow Lines), *Upamanyu Chatterjee* (English August) and *Vikram Chandra* (Red Earth and Pouring Rain).



R. K. Narayan



Mulkraj Anand



Vikram Chandra

dimension to the ghazal. He was a passionate lover of beauty. Wali also composed a few *qasidas*. Seraj (1715-63) is another distinguished composer of ghazals.

They further standardised the diction. The more important among them are Khawja Mir Dard, Mir Hassan and Mushafi. There is also the Lucknow School of poets who made their own valuable contribution to Urdu poetry. The major poets are Shaik Imam Baksh Nasikh, Haidar Ali Atas and Ali Ausat Rask. Traditional Urdu poetry reaches its pinnacle with the verses of Ghalib.

During the last three decades of the 19th century, the activities of the Urdu writers were influenced by the towering personality of Syed Ahmed Khan (1817-98) who started the Aligarh movement inspired by Ram Mohun Roy. Many Urdu poets were influenced by Iqbal (1875-1938), a poet of patriotic passion, who adored nature. In Urdu poetry we see the romantic and progressive trends.

Urdu fiction is rich in *Dastan* (cycles of legends) mostly translated from Persian. The works of Sarshar, Nazir Ahmed and Sharar

mark the beginnings of the novel. Ruswa's *Umrao Jan Ada* (1899), a novel appearing in the form of an autobiography of a dancing girl of Lucknow, has achieved international standards. Premchand, who is claimed also by Hindi is a giant among Urdu novelists. Drama also has flourished considerably in Urdu. Banarasi, Talib, Ahsan and Lucknavi are famous as playwrights. Husain Azad's anecdotal history of Urdu poetry titled *Ab-i-Hayat* has laid the foundations of modern literary criticism.

The Urdu literature has different phases in the modern period. Romanticism yielded place to progressivism as in other languages; the writers who claimed to be modernists rejected progressivism and marched forward. Imtizar Husain (b. 1925) has proved a real force in modern fiction. Other important writers of the contemporary period are Shahryar, Saqi Faruqi and Anis Nagi.

Qurratul-ain Haider, who has annexed the Jnanpith Award in 1990 is an outstanding fictionist. Her magnum opus is the novel *Aag Ka Darya* ('59) dealing with the horrors of partition.

Indian Music and Dance

In music and dance India can legitimately be proud of her past, a tradition dating back to the days of the Vedas.

To an extent, it is established now that Indian Music had its origin in the Vedas where it found its moorings. As centuries rolled on it developed into an integrated well-codified form. Development of music commenced with the folk idiom evolved in consonance with regional ingenuity, and slowly blossomed into classical forms. Though classical music in India differs from region to region, there is an underlying current of unity.

There are two systems of music in India, the Carnatic and the Hindustani, which are highly grammatized. These are supplemented by folk music, bhajans and kirtans.

Raga is a melodic scheme covered with certain traditional rules, at the same time leaving enough freedom for improvisation. These rules determine and define the notes of a scale for each raga, their order, and their essence which give a particular colour to the scheme. The Melakarta embracing 72 ragas governs the Carnatic scheme. Based on this structure innumerable Janya ragas (derivative ragas) have blossomed. A raga should have a minimum of four notes to ensure a personality. In the earlier

years of its evolution, Hindustani music did not have a Melakarta system. Later on due to the efforts of Shri Bhatkande, a streamlining has been done.

The basic character of Indian Music is its emphasis on melody. As melody is a movement of one-tone-at-a-time it naturally becomes progressions of sound patterns in a linear fashion. As a raga is basically an incipient melodic idea, it has perforce to be elaborated to bring forth its aesthetic potentialities. As a result these formal constructions are either rhythmically bound or free. Also they assume slightly different colourings according to the genius of the masters and these are known as Gharanas or Bhanis.

The music researchers have concluded that raga, as a concept and practice, matured by the fifth century A.D. If one digs into the past, one would find that it was in the Sama Veda, the seeds of raga were sown, as this was chanted in a descending manner with full seven notes.

A degree of difference exists in the approach to raga formation in the Hindustani and Carnatic systems. The Hindustani system has got a peculiar characteristic that it constantly emphasises the Vadi and Samvadi notes in a raga; all phrasings gravitate towards this. In simple terms Vadi and Samvadi are the two

pivotal notes of a raga structure like the reins of a horse. The result is that a number of ragas can be created having the same notes and syntax by altering these centres of gravity. A Carnatic raga, on the other hand, has a way of distributing tonal emphasis thereby giving greater freedom to the musician in creating patterns. Also the Gamakas or graces are characteristically different.

The Hindustani system has its broad sweeps and glides and the Carnatic its almost coiled coil technique. And finally unlike the Carnatic system, Hindustani music is based on the time theory. The morning ragas, the midday ones, the dusky varieties and of course the night and mid-night, not to mention the dawn. In Carnatic music, though there are indications in this regard, in concerts this rigour is not strictly adhered to. Like derivative ragas in the South, there are the Raginis in the Hindustani idiom. There is also an element of gender in Hindustani music. Raginis sport the female gender and of course Ragas the male.

Talas are rhythmic cycles. They have a universal unity. Two plus two cannot but be four. Indian music has got the most complicated variety of tala structures in the world. And this is specially so in Carnatic music where even fractions are harnessed. In the world everything is rhythmic, even the rattle of a train. But that would be linear rhythm. Only when there is a feeling of coming back to the origin a form is ensured, though repetitive or cyclic; say, like the days of the week, Monday to Sunday and Monday again.

The fundamental units of the Indian rhythmic-structure are three (thisram) four (chathusram) five (khandam) seven (misram) and nine (sankeernam). On a closer look, it would be discernible that the last two are only mixtures of the second and third. Three + four and four + five. We may leave the vulgar fractions to the virtuosos. As *talas* are simple arithmetic, there cannot be any difference in the manner of their operations. But while in Hindustani music, the transit from the Vilambit stage (slow tempo) to the Dhrut (fast tempo) is without any strict sense of temporal proportions, in Carnatic music the duration values are definite. The Dhruta is double the Madhya (middle) which in turn is twice the Vilamba.

Composition

Prior to Thalappakkam Annamacharya, who evolved the Krithi pattern as in vogue today Pallavi, Anupallavi and Charanam Carnatic music had its own system. In Tamil Nadu saint composers like Arunagiri Nadhar, Muthu Than-

An encyclopaedia on music

India is to get its first encyclopaedia on music by 1997. The project, conceived by well-known tabla exponent the late Pundit Nikhil Ghosh as early as 1961, has been taken up by his sons sarangi player Dhruba Gosh, and sitar and tabla player Nayan Ghosh and others including executive editor S.D. Pillai.

About Rs. 26 lakhs, including a Rs. 5 lakh grant from the Maharashtra government, has so far been invested in the project, launched under the auspices of a cultural institute, Sangeet Mahabharati, Bombay, of which Pandit Nikhil Ghosh was the founder-principal.

The two-volume encyclopaedia would cover all aspects of music in the Indian sub-continent such as biographies, technical terms, *gharanas*, *ragas*, *talas* and instruments, totalling 6,000 entries covering 2,000 pages.

The encyclopaedia, written in English, will also cover music from neighbouring countries of Pakistan, Bangladesh, Nepal, Sri Lanka and Afghanistan as well as western music in India.

davar, Manikavachagar and Thayumanavar had composed devotional canticles like Thirupugazh, Thevaram and Kirtanas. As there was no system of notation obtaining then, these were learnt and mastered by the ear.

It was Purandaradasa from Karnataka who not only gave shape and form to Carnatic music by perfecting the Krithi pattern but evolving a number of musical exercises in the form of Sanili, Jandai, Dhattu and Geetam. This gave structure to the idiom. It can therefore be said that it was Purandaradasa who gave a launching pad to Thyagaraja, Syama Shastri and Muthuswami Dikshitar to pour forth their devotion into music. This trinity finally emerged as the greatest contributors to the enrichment of Carnatic music. Thyagaraja sang in simple Telugu in praise of Rama who was his Ishta Devata. As he had a large number of disciples by his side always his compositions easily caught on and became popular.

The unique feature of his compositions is that every song was the result of an inner inspirational urge, having for its background a personal experience or anecdote. He covered almost the entire range of ragas and more than that he covered a raga in his composition from

various angles leaving very little elbow room for future composers. This must have prompted Dikshitar to adopt the Dhrupad system for doubling the pace of the stanzas in between to give a new look to his compositions. Syama Shastri sang in praise of Kamakshi, the presiding deity at Kancheepuram. His compositions revealed his technical virtuosity in Carnatic music. While Thyagaraja's compositions can be learnt by listening, those of the other two in the trinity have to be learnt from a Guru.

There are also the Padams, Jhavelis and Kavadi Chindus to adorn the lighter side. The first two are the counterparts of the Thumris of the Hindustani style. They are erotic in content and have to be sung with emotion and a feeling for the lyrics.

Coming to the *Hindustani* idiom, the Dhrupad

is the most ancient form of composition evolved by *Swami Haridas* and *Tansen*. The Swami lived some time at the end of the fifteenth century. He became a sanyasi belonging to the yogic lineage of the Andhra philosopher *Saint Nimbarka*. Bhakti was the keynote of his compositions. Tradition has it that *Baiju Bawra* and *Tansen* were his disciples. *Tansen* was born in the earlier part of the 16th century. Legend has it that he was the son of one *Makarand Pande*, and was named *Ram Tanu* and was christened *Tanna Misra*. He adorned the court of *Akbar*. He is credited with the cre-

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ation of new ragas such as *Miyan ki Malhar*, *Darbari Kannada* and *Miyaki Thodi*. This idiom had gone into oblivion for long, but has now surfaced due to the efforts of the *Daggar* family. It has also caught on in the West in view of the robustness of the compositions.

The word *Khayal*, of Persian origin means Imagination. Though its origin is attributed to *Amir Khusro* to whom all untraceable things are traced, consensus of opinion is that it came into prominence due to the efforts of *Sultan Mohammed Sharqui* in the 15th century and became acceptable as a classical form from the time of *Sadani* and *Nyamet Khan* (18th century). Unlike the Dhrupad, it is more delicate and romantic. For in structure and technique, it has certain freedom not found in Dhrupad.

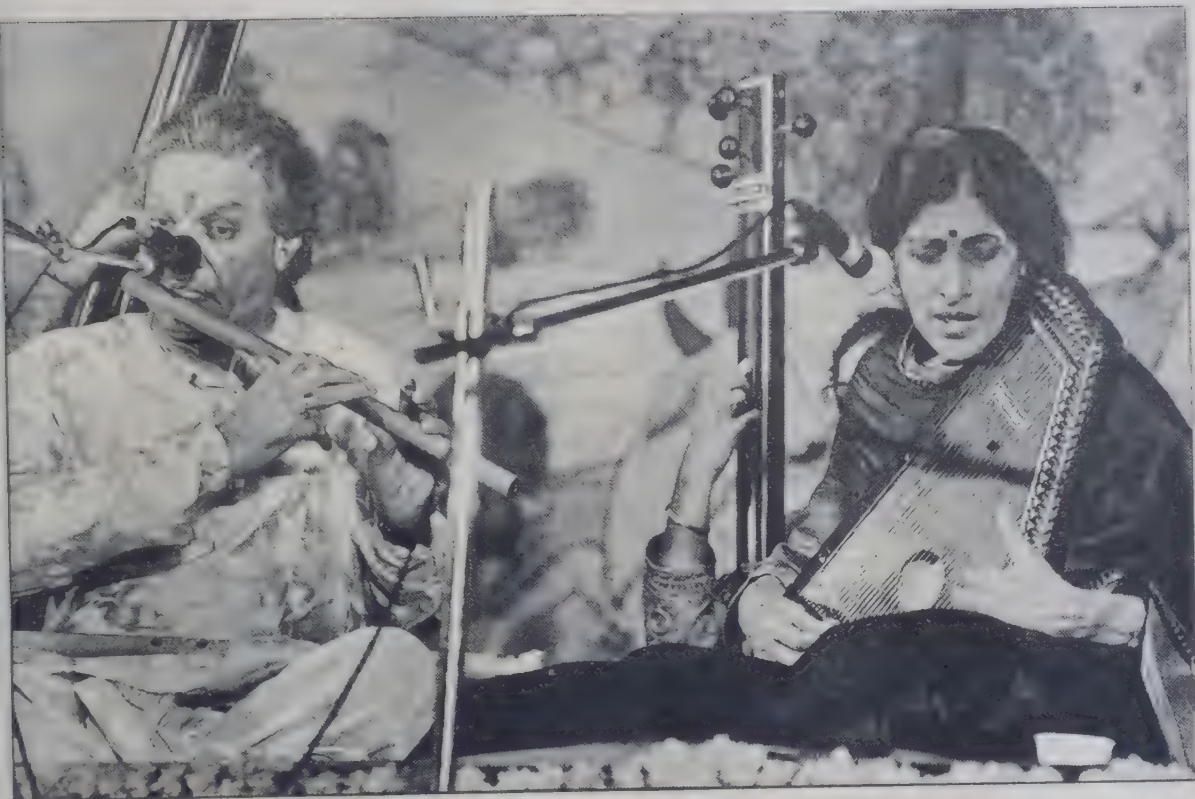
A *Khayal* need not start with an Aalap so necessary in a Dhrupad. It depends on the genius of the singer to beautify it, by giving each note its proper environment, gamakas and an inner sense of melodic proportion. There have been great names in this regard like *Balakrishna Bua* (Gwalior Gharana), *Rahamat Khan* (Gwalior Gharana), *Natthan Khan* (Agra Gharana), *Fayyaz Khan* (Agra Rangeela Gharana), *Alladia Khan* (Jaipur Gharana), *Bhaskar Bua* (Agra, Gwalior, Jaipur Gharanas), *Abdul Karim Khan* (Kirana Gharana), *Abdul Walid Khan* (Kiran Gharana).

The *Thumri* is a very light form often bordering on the vulgarly sensuous. It quite possibly, is associated with the *Radha-Krishna Bhakti* cult and harnessed in *Kathak*. It was very famous in the 19th century under the patronage of *Wajid Ali Shah*, who was interested in Bohemian pleasures. He was a generous patron whose court was adorned with dancers and music luminaries. The *Tarana* is a composition which does not use meaningful words. Its libretto is made of syllables like *nadir*, *tome*, *tarana* and *yalali* which are mnemonics of *tabla* and *sitar* strokes. Its parallel can be found in the *Thillana* of the Carnatic idiom.

The *Ghazals*, now very popular, are more famous for their erotic content. *Mirza Ghalib* can be called the father of this style and he did not mince words in describing its purpose. His philosophy was wine and women. It is now a commercially viable venture and draws far larger audiences than any other style of Hindustani music. The above touches only the broad and fundamental aspects of the two main styles of Indian music.

Instruments, *veena*, *gotuvadhyam*, *thavil*, *mridangam*, and the plain drum are some of the ancient instruments of music in India. The *sitar* and the *tabala* were late comers. The *sitar* appears to have infiltrated from Persia and has assumed great popularity. Except the *veena* which is neatly fretted, all instruments are negotiated by the method of trial and error. Their handling depends on the ingenuity and dexterity of the player. The *flute* and the *nadaswaram* as also the *shehnai* are wind instruments; the *veena*, *gottuvadhyam*, *sitar* and now the *sarod* from Afghanistan are stringed instruments. The drum varieties are percussion instruments.

Indian instrumental music is *basically vocal* in conception. This is more pronounced in Carnatic music where the artiste reproduces only the works of great masters on the instruments. The element of licence and improvisation occur in the Aalap or the free prelude. But there is a slight difference. In Hindustani music, instrumental scores do not rely on musical compositions with lyrics alone.



Jugalbandi: Pandit Hariprasad Chaurasia with Kishori Amonkar.

A musical phrasing based on a given rhythmic cycle is taken up for delineation and is processed in five stages namely, Aalap (free prelude), Jhod and Jhala (chords), Gaat (the musical structure to be negotiated), the Vilambit (slow pace) and the Dhrut (fast tempo). Though there are separate musical scores for musical instruments, the emphasis is on the Gayaki Ang. That is, effort is made to be as faithful as possible to the vocal style. However, these days great maestros are trying to innovate an experiment on patterns unique to the instruments and bring out their potentialities.

Pandit Ravishankar, Ali Akbar Khan and Amjad Ali Khan are instances in point. Ravishankar has gone a step further and specialised in orchestration also. Not only that, he has also tried to effect a fusion between Indian and Western music. He has rubbed shoulders with the *Beatles*, the *Pop* and *Jazz* tribes. Only posterity will be able to decide the value and potentiality of this experiment. On the percussion side also there has been a lot of effort to achieve a common platform for drums of all types. Zakir Hussein, the young and ebullient son of the illustrious Allah Rakha has made much progress in this direction. This effort clicked, as rhythm has universal appeal and brooks no regional or international prejudices.

The violin, a totally western instrument has also been Indianised and has become popular. It was in the 19th century that the brother of Muthuswamy Dikshitar, Baluswamy Dikshitar, introduced the violin to India. Since then it has caught on and become an indispensable adjunct to Indian music. In fact, it has eclipsed all other Indian instruments, in view of its portability, negotiability and range. It does not react wildly to the vagaries of weather, like its Indian counterparts and no wonder it is the most sought after instrument, especially in the South. Why south, one may ask.

In the North, the *Sarangi*, another stringed instrument, has been in vogue for centuries. But it has its inadequacies. It sports a plethora of vibrating strings which have to be returned for every change of raga in a concert. Added to this, it has to be operated by the knuckles instead of the fingertips. In the circumstances, there cannot be pin-point precision in notes in the speedier utterances. In inexperienced hands, it will be an instrument of aggression. Years of practice only can enable an artiste to achieve perfection. But its beauty lies in its rich total timbre that can surpass even the voice. It can stir the heart in the Vilambit passages. So much so that in the Akashwani it is featured when any dignitary passes away. In the recent past the violin has

started catching on in the north also. V.C. Jog and Smt. N. Rajam are two outstanding artistes of this instrument.

There have been great maestros of violin and there still are in the south. Starting from Govinda Swamy Pillai, there have been stalwarts like Dwaram Venkataswami Naidu, Mysore T. Chowdiah, Rajamanickam Pillai and Mayavaram Govindaraj Pillai. Today the younger set has achieved astounding perfection and professionalism almost eclipsing the old-timers. Lalgudi Jayaraman, M.S. Gopala Krishnan and V.V. Subramaniam are a few instances. Special mention must be made of the outstanding achievements of the young violin maestro Prof. L. Subramaniam who has not only mastered the Carnatic idiom but also the Hindustani and Western styles. In the last mentioned he is on par with the top rankers in the West. Zubin Mehta, when asked about his impressions of the Indian violinists, observed. Oh yes, that young lad L. Subramaniam, is tops.

The number of Carnatic musicians is too large to admit of detailed mention. But it would be worthwhile to mention a few great names. Palghat Rama Bhagavatar, Ariyakudi Ramanuja Ayyangar, Mahanjapuram Vishwanatha Iyer, Madurai Mani Iyer, Chembai Vaidyanatha Bhagavatar, Palghat Mani Iyer, Palani Subbudu, Dakshinamoorthy Pillai. But the sole credit for making Carnatic music popular in the West should go to Smt. M.S. Subbulakshmi who with her golden voice took the Western world by storm.

Bharatanatyam is poetry in motion. It is a highly traditional and stylized dance form, crystallized in the cast-iron mould of Bharata's technique that disallows new-fangled gimmicks.

More than that, she harnessed music as a vehicle of devotion and philanthropy. Indeed she realised the real purpose of music.

Dance

Among the various dance forms in vogue in India are Bharatanatyam, Chakiarkoothu, Kathak, Kathakali, Krishnanattam, Kuchipudi, Manipuri, Mohiniattam, Odissi, Ottanthullal and Yakshagana. Besides, there are umpteen numbers of folkdances peculiar to various regions and sub-cultures.

Bharata Natyam is poetry in motion. Tracing its hoary origins in the Natya Shastra, written by

the great sage, Bharata, it is a highly traditional and stylized dance form. Crystallized in the cast-iron mould of Bharata's technique, this art form grossly disallows new-fangled innovations or gimmicks except in repertoire and forms of presentation. Emerging far back in the labyrinthine twists of ancient history (as information for the date conscious, 4000 B.C. is the ascribed date to the Natya Shastra), Bharatanatyam has been immortalized in successive generations, as much by the sinuous grace of great dancers as by the nimble fingers of renowned sculptors who have demonstrated the perfection of Bharata's technique in the flowing lines of temple sculptures.

Its present form was evolved by the Tanjore quartet namely Poniah Pillai and brothers. Earlier variedly known as Dasi Attam and Sadir, it was practised by Devadasis of the South Indian temples. It went into disrepute due to economic and social conditions and it was Rukmini Devi who gave it new life and respectability. Its format consists of Alarippu (invocation), Jathi Swaram (note combinations), Shabdham (notes and lyrics), Varnam (a combination of pure dance and abhinaya), lighter items like Padams and Javalis (all erotic) and finally the thillana (again pure dance). On par with Rukmini Devi, there was Bala Saraswati, the queen of Bharata Natyam.

Chakiarkoothu. This form is believed to have been introduced to Kerala by the early Aryan immigrants and is performed only by the members of the Chakiar caste. A highly orthodox type of entertainment, it can be staged inside temples only and witnessed by the Hindus of the higher castes. The theatre is known as Koothambalam. The story is recited in a quasi-dramatic style with emphasis on eloquent declarations with appropriately suggestive facial expressions and hand gestures. The only accompaniments are the cymbals and the drum known as the mizhavu, made of copper with a narrow mouth on which is stretched a piece of parchment.

Folk Dances of India vary according to the region and have no specific grammar. They fit in with the scheme of festivals in each region.

Kathak. It has its root in Katha story. A band of story tellers who were attached to temples in North India, narrated stories from epics. Later, they added mime and gesture to their recitation. The next stage in its evolution came in the 15th and 16th centuries A.D. with the popularisation of the Radha-Krishna legend. With the advent of the Muslim rule, it was taken out from the temples to the courts. Jaipur, Lucknow and Benaras became the centres. While Jaipur gave predominance to pure dance with



Kuchipudi: Swapnasundari

emphasis on rhythm, the Lucknow one drifted into erotics.

Benaras also stuck to pure dance but it provided for the sensuous aspect by delineating episodes from the Radha-Krishna legend. The patron king of the Lucknow style was Wajid Ali Shah who spent extravagantly on art. The place of women in Kathak was of a different order. They were known as *nach-walis* who adorned the courts of the Mughals. Apart from this, they were used for entertainment of the pleasure seeking rulers and their fawning toadies. Eventually they came to be categorised as women of easy virtue. The Kathak dance goes through a regular format mostly concentrating on rhythm, variously called *Tatkar*, *Paltas*, *Thoras*, *Amad* and *Parans*.

Binda Din Maharaj, Kalkadin, Aachan Maharaj, Gopi Krishna and Birju Maharaj are but a few maestros in this line.

Kathakali is the most refined, the most scien-

tific and elaborately defined dance form of Kerala. As it is obtained today it is not more than 300 years old, but its roots can be traced back farther past. It is a very exciting art form demanding not only complete control of practically every fibre of the artist's body, but also intense sensitivity of emotion.

The stories for *attakathas* (the verse text for a *kathakali* piece) are selected from epics and mythologies and are written in a highly Sanskritised verse form in Malayalam. The actor does not speak, but expresses himself through highly complicated and scientifically ordained *mudras* and steps, closely following the text being sung from the background of the stage.

The domain of *kathakali* is peopled by superhumans, gods and demons, and animals who are presented in a larger than life format. What strikes the spectator first and most is the splendour of the costumes, ornaments, and facial make-up which transform the actor-dancer into a type rather than a particular character. A character can be identified by the colour he sports. A green-painted face stands for nobility, honour, valour and such higher qualities.

Mythological heroes like the Pandavas, King Nala and divine personages like Krishna and Indra wear this make-up. In characters who wear the *katti* make-up, the green on the face is broken by a red patch, resembling an upward twirling moustache. This make-up is symbolic of high-born anti-heroes, who are demonic, but worthy foes to the heroes. Examples are characters like Duryodhana, Ravana and so on.

Another character classification called *tadi* (beard) includes wearers of red, white and black beards. Red worn by vicious and savage villains like Dussasana, Bakasura and so on, white by the pious giant monkey Hanuman, and black worn by aboriginal hunters and forest dwellers. The category called *kari* (black) has characters whose faces are painted in lamp black, mostly ogresses like Shurpanakha and Hidimba. In complete contrast is *minukku*, in which the face is painted in delicate flesh tones with yellow and red powder. They are the noble women, queens, princesses, mostly heroines like Damayanti, Sita and others.

The vocabulary for the performer is only *hastamudras* (stylised hand gestures), facial gestures and *nritta*. Together with the exotic quality of the spectacle and the intricate *abhinaya* system and the rhetorical text rendered in classical style to the accompaniment of drums, a *kathakali* performance transports a spectator to an unwordly atmosphere peopled by gods, demons and other superhumans.

It takes years for a novice to graduate into an actor. Seven years of full-time practice under a

meticulous teacher is the minimum called for. But to make an accomplished actor able to portray versatility, it takes many more.

Kathakali had its origins in the courts of the kings of Kerala. It is considered to be a highly synthetic art form, combining in itself the rudiments of its earlier forms like Krishnanattam and Ramanattam plus a highly scientific dance drama form. It is not folk, but highly classical, though not very old.

Most of the attakathas were written in the last century, but new attakathas are also appearing, though the standards are still kept undisturbed. There is plenty of innovation going on, yet all within the framework of the basic format. One of the noteworthy innovations was rendering Goethe's German classic *Faust* into an attakatha.

Poet Vallathol can be said to be the fountainhead of all inspiration in regard to today's kathakali. He authored many a script. Kerala Kalamandalam at Cheruthuruthy on the bank of Bharatapuzha is the premier institution in this regard.

Koodiyattam. This is always a long drawn out affair and may take anywhere from a few days to a number of weeks. It is both entertainment and edification. The Vidhushaka rules the roost. He moralises and his armoury satire and innuendo has some times no relevance to the theme of the play.

Krishnanattam. It is intended for presentation on eight successive nights to unfold the entire story of Lord Krishna; the style is almost akin to Kathakali.

Kuchipudi. It is the dance drama of Andhra

Pradesh. It is the corresponding style of the Bhagavata Mela Nataka of Tamil Nadu. Except that the emphasis is on the animation, the grammar is derived from the Natya Shastra and in all other aspects it is akin to Bharata Natyam.

Tirtha Narayana and Siddendra Yogi evolved this style. Kuchelapuram in Andhra Pradesh was the originating centre for this style. Hence the name Kuchipudi. It was a male prerogative. In recent years women have taken to it but it is mostly solo dance that they perform. To this extent the concept has been watered down. Like Kathakali it used to be a week-long affair. Vedartham Satyanarayana is the doyen of this style and he has carved out a niche for himself in portraying the role of the haughty, beautiful and vain-glorious Satyabhama. Vembhati Chinna Satyam, however, is the most popular guru today.

Manipuri. From the 15th to the 18th centuries, Vaishnavism came to be adopted in Manipur and this ushered a new era in the development of this style. For Manipuris, dance has been so inextricably woven into their pattern of life. The dance form is mostly ritualistic. It has still preserved the dance drama technique which draws heavily from the rich lore of legend and mythology. Costumes are colourful and the music has a quaint old-world charm. The numbers presented are Lai Haraoba and Rasa Leela. The former deals with the creation of the world and the latter is on Krishna Leela.

Drums play an important part and the Poonan Cholom item is a must in any performance. The

Kartar Cholom dance with cymbals is another exciting item.

Mohiniyattam is also the heir to Devadasi dance heritage like Bharatanatyam, Kuchipudi and Odissi. The word Mohini literally means a maiden who exerts desire and steals the heart of the onlooker. There is the well-known story of Lord Vishnu taking on the guise of a Mohini to enthrall people, both in connection with the churning of the milky ocean and with the episode of the slaying of Bhasmasura. Thus it is thought that Vaishnav devotees gave the name of Mohiniyattam to this dance form.



Kathakali: intense sensitivity of emotion

In format, this is similar to Bharatanatyam. The movements are graceful like Odissi and the costumes sober and attractive. It is essentially solo dance.

The first reference to Mohiniyattam is found in *Vyavaharamala*, composed by Mazhamanalam Narayanan Nambudiri, assigned to the 6th century A.D.

In the 19th century Swathi Tirunal, the king of erstwhile Travancore, did much to encourage and stabilize this art-form. It was Poet Vallathol who again revived it and gave it a status in modern times through Kerala Kalamandalam, which he founded in 1930. Kalamandalam Kalyaniamma, the first dance teacher of Kalamandalam, was instrumental in resuscitating this ancient art form. It is slowly trying to acquire an identity and classical status.

Odissi. This is also based on the *Natya Shastra* and the earliest evidence, we have of the existence of the art of dance in Orissa is during the 2nd century B.C. when the Jain King Karavela ruled. Himself an expert dancer and musician, he arranged a performance of *Thandava* and *Abhinaya*.

In the early 17th century, a class of boys known as *Gotipuas*, came into being. They dressed as dancing girls and danced in the temples. Grace is its uniqueness and the most

important elements are the *Bhangis* and *Karanas*. The *Bhangis* are the basic poses and the *Karanas* the basic danceunits.

The format consists of *Bhumi Pranam*, *Batu*, *Pallavi* and lighter items like the *Ashtapadi* ending in *moksha* approximating to the *Thillana* of the South. It has gained great popularity today and it is to the credit of Smt. Samyukta Panigrahi to have made it acquire universal appreciation. Today *kelucharan Mahapatra* has become a name to reckon with as a pre-eminent guru.

Ottan Thullal. It is performed solo and because of its ready mass appeal, it is also known as the poor man's Kathakali. Kunjan Nambiar evolved it and brought out the social conditions of his time, the distinctions of class and the weaknesses and whims of the rich and the great. The dialogue is in simple Malayalam and therefore ensures mass appeal.

Yaksha Gana. This belongs to Karnataka and has a rural origin. It is an admixture of dance and drama. Its heart lies in *Gana* meaning music. It is about 400 years old. The language is Kannada and the themes are based on Hindu epics. The costumes are almost akin to the Kathakali ones and the style seems to have drawn inspiration from Kathakali. As prescribed in the *Natya Shastra*, it has the *Suthra Dhara* (conductor) and the *Vidhushaka* (the Jester).

Indian Painting, Sculpture

Despite great gaps in our knowledge of continuities in history, the story of Indian painting has to begin with the art of primitive man which has survived in rock shelters and caves in places like Hoshangabad, Mirzapur, Bhimbetka.

Stone Age paintings belonging to the Magdalenian phase (15,000 B.C.) have been discovered elsewhere. The chances are that the paintings in India do not go that far back. But it is accepted that the primitive intellect and vision can survive for long when communities are isolated. Thus these paintings share the vivid realism of primitive art that has been discovered in many places like Altamira in Spain and Lascaux in France. The silhouette effect creates a dramatic shadow play of scenes of hunt, the open mouth of the wounded boar expresses all its pain.

The epoch of the Indus Valley Civilization (3000 B.C. – 1500 B.C.) was one of elegant urban culture, but since the superstructures have not survived, no murals have come down to us. But

in the case of the Aegean culture of ancient Crete we find close similarity between mural painting and the painting on pottery. The Indus epoch also may have had extensive mural painting, for the painting on the pottery that has come down to us in abundance shows maturity and range, from vigorous realism through rhythmic stylization to strikingly expressive abstraction.

The earliest paintings of Ajanta date back to the first century B.C. and the latest to the eighth century. The spirit of the compassionate Buddha is their inspiration.

Perhaps Hinayana or early Buddhism did not understand that spirit correctly, for it remembered only the transience of things, the pervasiveness of pain. But, though Siddhartha had wanted to take his infant son with him when he left the palace, he could not because the mother's hand lay protectingly over the child even in her sleep. He remembered this after his enlightenment and told all to have the same kind of protective regard for every living thing. He

Indian art goes global

Auctions organised by two internationally renowned auction houses in 1995 have widened the appeal of contemporary Indian paintings in the international arena.

The increasing interest in Indian art abroad was seen in the responses to the Sotheby's auction in New York in June, and the auction by Christie's in London in October.

The landmark first time sale of about 220 paintings at the Sotheby's auction brought in \$1.2 million, surpassing the pre-sale high estimate of \$1.1 million. In the Christie's show, 88 works fetched about the equivalent of \$750,000 including taxes.

The New York show listed 44 paintings of M.F.Hussain, while London had only 11, including the one on Madhuri Dixit.

"The great success of the sale confirms the international market for the field of contemporary Indian paintings,"

said Mr. Carlton Rochelle, Director of Sotheby's Indian and Southeast Asian department in New York. Mr. Natwar Bhavsar, a New York-based artist famous for his colour-field canvases, called it a landmark event.

Contemporary Indian art has been largely overlooked thus far by the academics, dealers and collectors, with ancient Indian art and artifacts being the focus of their interest on the subcontinent.

The offering of works at Sotheby's featured 38 of India's best-known artists including M.F.Hussain, S.H.Raza, Tyeb Mehta, Jogen Chowdhury, Arpita Singh, Ganesh Pyne, Laxman Goud, Rameshwar Broota and Jamini Roy.

The top ten selling paintings were all by M.F.Hussain. The painter's 1969 oil on canvas, "Untitled" sold for 48,875 dollars more than double Sotheby's high estimate of \$22,000. The sale set a record high price for an individual work by the painter. Hussain's 1988 "Tikka" surpassed its high estimate of \$9,000, selling for \$32,200. Several paintings by his son Shamshad, were also featured in the sale.

Other works also performed exceptionally

well. Jamini Roy's "Gopini", a figurative work of a dancing woman, made a brisk start to the auction selling for \$26,000. Sotheby's had estimated the work to sell at \$4,000-6,000.

Most-sought-after Menon

Anjolie Ela Menon is one artist who attracted the greatest interest at Christie's. She has acquired the 'most-sought-after' status over the last two decades in India. Two of her paintings — 'The Fisherman's Tale' and 'Dariba Kalan' were subjects of frenzied bidding. Menon who doesn't paint on a canvas but uses hardboards, is described as a colourist of rare skill. To her, colour is everything. She thinks in colour and paints lines in reverse. "It is with colour that one plumbs to the depths of sorrow and pain."

At Christie's M.F.Hussain's painting alone accounted for almost a quarter of the total sales — £111,400 for paintings. 'British Raj', marked at a base price of £16,000, finally went for £27,600.

At both auctions, most of the bidding was done by NRIs. Indian art has been plagued by the absence of a credible market network and reliable documentation. International art market is dictated largely by Western preferences, and it will take India a long time to make its presence felt in this world of aesthetic tastes and art business.

Art on Internet

The latest development in the art market is that Indian art is going on sale on the Internet. A simple click on the computer will, within the fortnight, purchase a pricy piece of contemporary Indian art. Almost anybody with access to one of the estimated five million computers which together comprise the information superhighway, will be able to stroll into the art gallery with a few simple commands. A couple of clicks will summon on the screen post-card sized versions of works. Rekha Rao will be the first Indian artist to 'exhibit' her works in the virtual world. If you want to buy one, a single key will conjure up the order form which can be filled and despatched in a matter of minutes. The painting will reach the buyer within weeks.

The Indian artists, who usually have to wait for three years before they get gallery space to display their works, will benefit from the year-round exposure that the gallery can provide. They will also be able to reach the NRIs who are big buyers of Indian art now.



M. F. Hussain

ected Nirvana for
 nself and was bom
 in and again to help
 manity in its travails,
 t only in many human
 es, but as a deer, an
 phant, a swan.

The Jataka tales
 laborated the vicissi-
 des of these incama-
 ns and the Ajantan
 sts painted them in
 ous line and sensi-
 e colour. City, coun-
 side and forest, men
 d women of every
 oe, fauna and flora,
 are mentioned in
 ese murals.

Since the brush and
 e chisel accompanied
 e message of peace
 en Buddhism radi-
 ed to the rest of Asia,
 anta became a foun-
 inhead of Asian
 inting and murals
 th the clear stamp of
 s style. This can be

en in Sigiriya in Sri
 nka, Bamiyan in Af-
 anistan, in many places along the old silk
 ute in China, in Korea and in Horiyuji in Japan.

In India itself the mural tradition continued,
 ough with less momentum, in Chalukyan
 adami (sixth century), Pallava Panamalai (sev-
 nth century), Pandyan Sittannavalai (ninth
 century), Chola Tanjore (twelfth century),
 pakshi of Vijayanagar (sixteenth century) and
 e murals of Kerala of various dates reaching to
 e middle of the nineteenth century.

Meanwhile, painting had come down from
 e extended mural surface to the miniature
 mension of the manuscript, originally on
 alm-leaf, later on paper. The miniatures of Pala
 eriod Bengal (tenth and eleventh centuries)
 onserve the sensuous line of Ajanta. But there
 a rapid decline now and the line becomes
 rittle and angular.

It is this style that spread to western India and
 een in numerous illuminated manuscripts,
 e bulk of them being Jain texts, of the period
 om the twelfth to the fifteenth centuries. But
 wind of change begins to blow during the
 tter half of the fifteenth century and the first
 uarter of the sixteenth.

In response to the lyricism of poems like the
Lasanta Vilasa (Dalliance in Spring), in Bilhana's
Chaura Panchasika (Fifty Stanzas on Stolen Love)
 nd *Laur-Chanda* (the Romance of Lorik and



Anjolie Ela Menon and 'Magoalena'

cuttner, INP

Chanda), line again becomes supple, colour
 lustrous. The Indian miniature stabilizes a fine
 pictorial style even before the advent of the
 Moghuls.

Though the imperial court of Akbar was
 headed by artists from Persia, Moghul painting
 is not a provincial school of Persian painting.
 The latter retreats into a paradisiacal world of
 romance, while Akbar is interested in contem-
 poraneity, in history in the making. The organi-
 zation of the studio and its working also brought
 about a rapid indigenisation of the alien idiom.

Akbar recruited a very large number of Indian
 artists. Each painting was most often a co-
 operative effort of Indian and Persian artists,
 one man doing the drawing, another the colour-
 ing, a third the details. The indigenisation re-
 ceived further momentum when Akbar com-
 missioned the translation and illustration of
 Indian texts like the *Ramayana* and the *Ma-
 habharata*.

It is mostly artists trained in the Moghul
 atelier who became the court painters of the
 Rajput princes. But while Moghul painting was
 elitist, reflecting imperial pomp and circum-
 stance, Rajput painting presented in line and
 colour the great myths and legends of the land,
 the story of Rama, of Krishna, of the *Bhagavata*
 and the *Gita Govinda*. Of the many states in the

plains of Rajasthan, two need special mention.

The style of Kotah painting anticipates by nearly eighty years the primitive vision and virility of European fauvists like Douanier Rousseau. That of Kishangarh painting manages the perfect pictorialisation of the poetry of the Radha-Krishna story.

In the small principalities of the Himalayan valleys set up by intrepid Rajput warriors from the plains, many centres came up of which Basohli is unique for its intensity of expression, Kulu for its closeness to the folk style and Kangra for both its romanticism and large output.

A decline followed the close of the Rajput phase. With the strong presence of the west in the British era, western academism became popular, mostly self-taught in the case of a pioneer like Ravi Varma, through institutional training in the case of others. The revivalist school, headed by Abanindranath Tagore, was nationalist in inspiration, but its pictorial achievement was weak and sentimental.

The four pioneers of modern painting in India are Gaganendranath Tagore who tried out every technique and style, Amrita Shergil who integrated the pictorial idiom of the west and an Indian vision, Jamini Roy who discovered the virility of the folk tradition and modulated it in many ways and Rabindranath Tagore who demanded for paintings music's autonomy and independence from factuality and thus gave a charter for free variations on naturalism, abstraction and expressionism.

Sculpture

The story of Indian sculpture begins with the epoch of the Indus Valley Civilization and it is already a startlingly mature achievement. The figurine of the dancing girl that has come down to us testifies to good knowledge of bronze casting, indicates the fascination of the feminine figure that will endure throughout, points to the close relation between sculpture and dance in the Indian tradition.

Terracotta is the medium for objects used in ritual like mother goddess figurines as well as for recreation like toys of a great variety. Despite their small size stone sculpture achieves monumentalism and animals like bulls represented in the small steatite seals have a vibrant realism.

The dispersal of Persian craftsmen when the Achaemenid empire was overrun by the Greeks in the fourth century B.C. may have contributed to the monumental stylization of the figure of the lions in the Asokan pillar that has been adopted as India's national emblem. But the Mauryan age also evolved a gentler style in the

bull of the Rampurva pillar and the sympathetic treatment of animals continues throughout Indian sculpture. The Yakshas and the Yakshis (spirits of hills and trees) are at first rather rigid figures but the feminine figure soon becomes sensuously refined, even though remaining ample, in the Didarganj Yakshi.

The Sungas who replaced the Mauryas in the second century B.C. further refined the Yakshi figure with elaborately carved costume and jewellery, linked tree and woman through the nexus of fertility which symbolism was poetically brought out in the compositions and developed the skill for fluent narration in running friezes of low-relief or deep-relief sculpture.

The Satavahanas (second century B.C. to second century A.D.) further developed these traditions. The dryads of Sanchi are the most lissome representations of the type. Narrative sculpture at Amaravati brilliantly solved the problem of composition in awkward shapes like that of the medallion.

In the north-west regions, now no longer India, in the Indo-Greek kingdoms that emerged in the wake of the invasion under Alexander, the plastic vision of ancient Europe combined with Buddhist spirituality to create the art of Gandhara. This region became part of the vast Kushan empire of Kanishka (second century A.D.) which stretched from the Oxus to the Ganges. But the Kushans mostly resided in Mathura and the art of this epoch was in the main a prolongation of the earlier traditions.

However, it was an age of highly urbanised and relaxed mores and the Yakshi figure lost its links with the woods, became a self-conscious seductive damsel of the city. Scenes of revelry with the wine flowing freely are represented in sculpture. Feminine apparel begins its first adventure of ambivalence, revealing while pretending to conceal, for the Mathura nymph wears so transparent a fabric that she appears nude.

The age of the imperial Guptas (300-600) achieved the classic stabilization of the icon of the Buddha, represented as seated or standing and with various symbolic gestures of the hands. The circular medallion that had decorated the railings in Sungan and Kushan times evolved here to the splendid aureole or halo of the Buddha. The transparent apparel of the Kushan epoch falls here in fine folds that trace flowing rhythmic patterns all over the figure. The visage with its delicacy of moulding achieves a rare serenity of expression, a quality of inward muting, realised never before.

The Gupta creation of the classical icon of the Buddha is a landmark in the art of Asia for, like the Padmapani of Ajanta, it radiated to many lands. This age also created magnificent scu-

on Hindu themes like the incarnations of Vishnu in the late fifth century temple of Deogarh. The powerful representation of the boar (Varaha) incarnation salvaging the earth, hewn in the rock at Udayagiri.

The Vakatakas of the Deccan were the contemporaries of the Guptas and under their patronage fine sculpture came up in abundance, mostly Buddhist at Ajanta, Hindu at Ellora. The achievement has great range, from the lightness of flying figures and the elegant rhythmic balance of dancing groups such as the group at Aurangabad to the majesty and wealth of the symbolic meaning of the figure Mahesa at Ellora.

The Western Chalukyas continued these traditions, creating floating figures and dancing groups at Badami, Aihole and Pattadakal. The Eastern Chalukyas also created some fine sculptures of dance in the temples of Vijayawada.

In the eighth century, the Rashtrakutas carved a whole hill of rock at Ellora to simulate a structural temple and peopled it with sculpture on the exploits of Siva which share turbulent power of their unique architectural achievement. The Gujara-Pratiharas who were their contemporaries evolved a less opulent though still monumental style in their creations as the cosmic form of Vishnu, created poetically sensitive sculptures like one showing the wedding of Siva and Parvati and contributed one of the loveliest carvings in the Indian tradition.

The Gahadvalas continued this tradition and the twelfth-century head from Rajorgarh is probably the best Indian sculpture for the most elegant representation of feminine coiffure. The trend of exquisite feminine figuration climaxed in the epoch of the Chandellas (tenth to twelfth centuries). The eroticism of Khajuraho sculptures has unfortunately attracted undue attention all over the world.

But far more sensitive in modelling and poetic in sensibility are the representations of women in her various moods of longing, expectation, reverie. Eroticism is found in the sculptures of Konarak and Bhuvaneshwar of the epoch of the Eastern Gangas (thirteenth century) too. But here again the poetic and evocative figurations of women are more sensitive.

Moving further south, the great achievement of the Pallavas (eighth century) was the gigantic temple at Mahabalipuram where a whole rock has been carved into a representation of the descent of the Gangas and the teeming animal and human life on its banks. There are some exceptionally fine and deeply sympathetic carvings of animal life here.



Dancer with Cymbals

Siva is the towering figure in Chola sculpture (eleventh and twelfth centuries) in stone besides bronze. But it is the work in bronze, especially the Nataraja or dancing Siva, that has become world famous, and deservedly so. Matching profound concept with perfect plastic form, this great iconic creation sees the incessant change of the world, the gyration of the electron as well as the galaxy, as an ordered process, assures man that it is a benign order.

Under the Hoysalas (twelfth century) the Karnataka region created a sculpture where the soft chloritic schist used attempted rather excessive detail and ornamentation. In the sixteenth century, Vijayanagar favoured a sculpture that reflected imperial pomp in elephant processions, cavalcades, marching soldiery.

Stone sculpture influenced by the Pallava tradition and bronzes influenced by the Chola style were produced in Kerala, but its unique achievement is in sculpture in wood.

Exposed to stimuli from all over the world,

Indian sculptors today are experimenting in all styles, using new materials like steel and aluminium, fibre-glass and even fibre. But the most significant trend seems to be the one which

seeks to recover the iconic quality, the power to stir the impulses of awe and adoration which are humanistically the most valuable strain in the Indian sculptural heredity.

Indian Theatre

The origin of Indian theatre can be linked with the tale that the fifth veda 'Natya' originated as per the desire of Brahma to entertain gods. This may not be true but it is certain that the origin of Indian drama is closely related to the ancient religious rituals and seasonal festivities in one manner or the other. In ancient times the Indian thinking was largely towards searching the truth and depicting the same rather than depend on realism and materialism. It could help in depicting wide varieties of characters and incidents as well as finer emotions.

The most renowned and talented dramatists of the ancient era are Ashwaghosh, Bhasa, Shudraka, Kalidasa, Harsha, Bhavabhuti, Vishakhadatta, Bhattanarayana, Murari and Rajasekhara who enriched Indian Theatre with their works like 'Madhyam Vyayoga', 'Urubhangam', 'Karnabharam', 'Mrichakatikam', 'Abhigyan Shakuntalam', 'Malavikagnimitram', 'Uttar Ramacharitam', 'Mudraraksasha', 'Bhagavadajjukam'. ('Bodhayana') 'Mattavilasa' ('Mahendra Vikrama') etc.

Historically, the rich style of old classical theatre patronised by the State and the popular style of the theatre supported by the people at large got amalgamated and transformed into various local styles in the medieval period due to various socio-political and cultural reasons. By the middle of the 19th century the prominent surviving local styles were 'Jatra' in Bengal, 'Tamasha' in Maharashtra, 'Bhavai' in Gujarat, 'Nautanki' in Uttar Pradesh, 'Maach' in Madhya Pradesh, 'Khayal' in Rajasthan, 'Naqul' in Punjab, 'Yakshagana' in Karnataka and 'Koodiyattom' in Kerala.

The beginning of the modern Indian theatre can be traced to 1795, when a Russian dramatist staged a play. But the real beginning was in 1831, when Prasanna Kumar Thakur established 'Hindu Rangamanch' at Calcutta and staged Wilson's English translation of Bhavabhuti's Sanskrit drama 'Uttar Ramacharitam'. 'Bengali Theatre continued its journey through 'Kirtivilas' of Yogendra Chandra Gupta, 'Bhadrarajuna' of Taracharan, 'Kulin Kula Sarvaswa' of Ramanarayan Tarkaratna and 'Neel Darpan' of Deenbandhu Mitra.

Social dramas of Girish Chandra Ghosh, historical dramas of D.L. Roy and artistic drama of Rabindranath Tagore continued to reach up to the stage of realistic dramas during the period of the worst ever famines of Bengal and Second World War. This was the beginning of the parallel theatre. 'Navanna' of Biswajit Bhattacharya written in the background of famine rocked the whole Indian theatre. It was directed by Shambhu Mitra whose group 'Bahuroopi' enriched Bengali Theatre for long.

Closely following the trends of Bengali theatre, theatres of Marathi, Kannada, Gujarati, Oriya and Hindi were also developing. Viswanath Das Bhawe was a pioneer in Marathi who wrote and staged 'Sita Swayambar' in 1843. His first Hindi drama, 'Raja Gopichanda', became very famous and it resulted in the formation of many professional groups such as 'Kirtloskar Natya Mandal' of Anna Sahib Kirtloskar. Vijai Tendulkar gave a new dimension to the Indian theatre. He transformed Marathi theatre with his controversial but very effective plays such as 'Gidde', 'Sakharam Binder', 'Ghasiram Kotwal', 'Kamla' etc. Khanolkar, V.V. Shirwadkar, Satish Alekhya, Jayavant Dalvi and Govinda Deshpande carried on this tradition.

Modern Kannada theatre had a beginning in 1918 with the staging of a drama by T.P. Kelkar. In 1930s, K.S. Karanth, A.N. Krishna Rao, Govind Pai and K.V. Puttappa went far ahead to enrich it. Dramas of Adya Rangacharya also played a great role. After independence, Girish Karnad, Naga Mandal, Lankesh, Sankranti, Chandrasekhar have contributed a lot to Kannada theatre. Directors such as B.V. Karanth, K.V. Subanna, Prasanna, Nagesh and Akshar Patil also added a lot to it.

Oriya theatre has travelled a long distance from the plays of Ramashankar Roy (1870-1910) to the works of Manoranjan Das, Jagannath Prasad Das, Basanta Kumar Mahapatra, Uday Mishra and Gopal De. Gujarati theatre has been dominated by translated or transcribed commercial plays. Madhu Roy, Vinayaka Purushottam Shiv Kumar Joshi, Damini Mehta, Pravin Joshi, Sarita Joshi, Bharat Dave, Mahendra Joshi, Dhimendra Desai have given a new dimension to it. Manipuri theatre has been benefited

the traditional folk-dramas and modern theatrical techniques of Ratan Thiyam. Kanhailal Lokendra Arambam also have contributed to it.

Tamil drama has its beginnings in the 19th century. Among the early exponents is Prof. Madaram Pillai whose 'Manonmaniam' was the most popular verse-drama. Sankaradasa Amigal, Sambanda Mudaliar and V.G. Anandarayana Sastri wrote dramas and played important roles in them. Thanjay Govindasamy Rao, and Venkataswamy Rayar wrote plays and staged performances in various states and east Asian countries.

Jawab Rajamanickam ('Nandanar'), Trichy Anayya Naidu ('Dasavatharam', 'Vallurumanam', 'Andal'), Viswanatha Das, Kittappa, Madurai Bhaskara Das, S.S. Brothers ('Ouvaiyyar'), K.R. Ramaswamy, N. Ratnam, P.U. Chinnappa, M.G. Akrapani, M.G. Ramachandran, N.S. Shnan ('Naam Iruvar', 'Paithyakaran') and Nagaraja Bhagavathar, S.V. Sahasranamam, S. Madhuram, Sivaji Ganesan and Draupati earned fame either as writers or actors.

Annadurai ('OarIravu', 'Velaikkari'), M. Ananidhi, M.R. Radha (Raktha Kanneer), R.S. Mohar ('Lankeswaran', 'Dronar'), Komal Mynathan, Cho Ramaswamy ('Sambhavamy Yuge', 'Mohamed Bin Tuglak'), Mauli, Viswamowry Kalyana Vaibogam), Mereena and Arnam Viswanathan also have contributed to the development of Tamil Theatre.

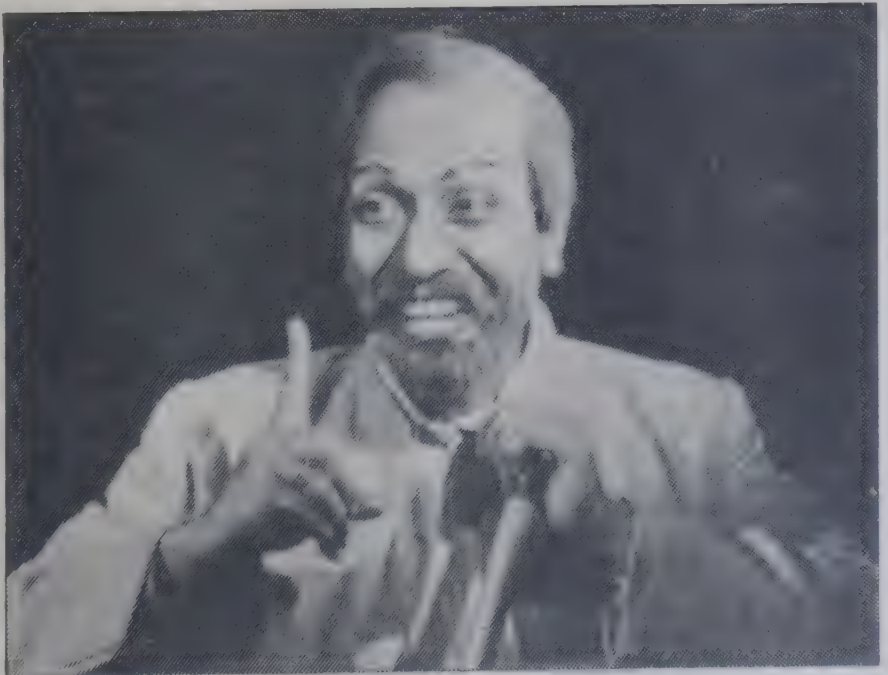
Malayalam Theatre has its beginning under the tutelage of Tamil. Chira Velukutty, Akbar Sankara Pillai, Sebastian Chukunju, Augustine Joseph, Vaikom Mani and Vaikom Vasudevan were among the early actors who earned fame. Among the early playwrights were C.V. Man Pillai ('Kurupilla Kalari', 'Papiellunnam Patha'), E.V. Krishna Pillai ('Smrithi', 'Vivahakammattam'), N. Krishna Pillai ('Kanyaka', 'Aagna Bhavanam'), Vinikkara Padma-
 bha Pillai ('Manimalam', 'Mathruka Manushyan'), Kaini-
 ara Kumara Pillai

('Kalvariyaile Kalpapadapam'), G. Sankara Pillai ('Poojamuri', 'Bandi'), G.J. Thomas ('Aa Manushyan Nee Thanne', 'Avan Veendum Varunnu'), C.N. Sreekantan Nair ('Kanchana Sita', 'Lanka Lakshmi', 'Saketam'), Veeran ('Thoovalum Thoompayum'), Cherukadu ('Tharavadithvam') and P.J. Antony ('Pothu Sathrukkal').

Among the later dramatists are T.N. Gopinathan Nair ('Pareeksha', 'Janadrohi'), Thoppil Bhasi ('Aswamedham', 'Sarasaiyya', 'Thulabharan'), Kavalam Narayana Panicker ('Deivathaar', 'Avanavan Kadamba'), Ponkunnam Varkey ('Vazhi Thurannu', 'Visarikkukattuvenda'), K.T. Mohammed ('Ithu Bhoomiyanu', 'Karava Pasu'), S.L. Puram Sadanandan ('Oral Koodi Kallanai', 'Agni Putri'), 'Kaattu Kurangu') and N.N. Pillai ('Kapalika', 'Cross Belt').

The troupes that enriched Malayalam Theatre and earned national and international fame are Kerala People's Arts Club (KPAC), Kalanilayam, Deshabhimani Theatre, Sangamam Theatre, Viswa Kerala Kala Samiti, Suryasoma and Geetha Theatres.

In the middle of the 19th century Indian Theatre was equally influenced by the western literature and the feelings of nationalism and pride in the glorious past of the country. In 1852-'53, the famous 'Parasi Theatre' started in Bombay which influenced the whole country in no time. On the other hand the amateur theatre also developed with the works of Bharatendu Harishchandra. His 'Andher nagari', 'Neel Devi', 'Bharat Durasha', 'Satya Harishchandra', etc gave



Sombhu Mitra in 'Dasachakra'

a new dimension to Hindi Theatre. Jayashankar Prasad continued this trend through his 'Skandagupta', 'Chandragupta' and 'Dhruvaswamini'. After independence Dharmaveer Bharati, Jagdish Chandra Mathur, Mohan Rakesh and Surendra Varma have further enriched this style.

After 1947, Bengali Theatre has also seen a change in style and technique. The biggest exponent in this period has been Badal Sarkar, whose dramas range from serious forms such as 'Evam Indrajit', 'Baki Itihas', 'Pagla Ghoda' to social and exciting dramas like, 'Bhoma', 'Julovs', 'Spartakas', 'Basi Khabar' and 'Prastava'. Mohit Chatterjee's 'Guinea Pig'. Arun Mukherjee's 'Marich Samvad'. Manoj Mitra's 'Bagia Bacharam Ki' and other dramas of Ajitesh Banerjee, Rudra Prasada Sengupta, Amar Ganguly, Tarun Roy, Praveer Guha, Kumar Roy etc. have also played a great role in adding to the glory of Bengali Theatre.

Indian Theatre and drama got a new footing, when Kendriya Sangeet Natak Academy was

started in January, 1953. Institutions 'Anamika' in Calcutta (1955), 'Theatre Union Bombay' (1954) and 'Three Arts Club' (1954), 'Little Theatre Group' (1948), 'Delhi Arts Theatre' (1951), 'Indraprastha Theatre' (1951) also played a great role in establishing modern Indian Theatre. State academies also set up in most of the states in 1950. However, the most important development was the starting of National School of Drama at New Delhi.

In 1960s, by suitable mixing of various styles and techniques from Sanskrit, Medieval folk and western theatre, the modern Indian Theatre was given a new, versatile and broad approach at every level of creativity. This made it more realistic, meaningful and lively. Slowly many writers broke the barrier of regional languages and produced many great works at national level. Badal Sarkar, Tendulkar, Adya Rangacharya, Girish Karnad, Mohan Rakesh and Dharamveer Bharati are the few among them.

Landmarks of history

The first wave of Aryan immigration into India began in 1500 B.C. They settled in the Punjab. Composition of the Rig Veda was the high watermark of the Vedic Age.

1000 B.C. Aryans expand into the valley of the Ganga: Composition of the *Brahmanas*.

900 Mahabharata War.

800 Aryans penetrate into Bengal: Composition of the *Mahabharata*: First version of *Ramayana*: Beginning of the Epic Age.

550 Composition of the *Upanishads*.

544 (?) Traditional Date of Buddha's Nirvana.

527 (?) Accession of Darius I in Persia.

518 Darius sends Scylax on a naval expedition down the Indus: Persian conquest of north west India: Formation of a Persian satrapy in India.

326 Alexander invades India. 323: Death of Alexander.

321 Chandragupta unseats the Nanda dynasty in Pataliputra and founds the Maurya dynasty. Kautilya, the Chief Minister of Chandragupta, writes *Arthashastra* (Science of Government).

272-232 Reign of Asoka.

185 Pushyamitra, the Mauryan General overthrows the last Mauryan Emperor Brihadratha and founds the Sunga dynasty.

145 Chola king Erata conquers Ceylon. Kharavela builds up an empire in Kalinga.

58 The Krita-Malava-Vikrama era.

30 Satavahana dynasty in the Deccan. Kalyan Empire in the far south.

26 A Pandyan king sends an ambassador to Rome. Chera kings in Kerala.

A.D. 40 The Sakas or Scythians in power in the Indus Valley and Western India.

52 Parthian King Gondopharnes in power in West India. St. Thomas begins preaching Christianity in India.

78 Saka Era begins.

98-117 Kanishka, the Scythian King.

320 Chandragupta I establishes the Gupta dynasty Gupta Era begins.

360 Samudra Gupta conquers the whole of northern India and much of the Deccan.

380-413 Chandragupta Vikramaditya: Golden Age of the Guptas Literary Renaissance Kalidasa and other poets. Renewal of Hinduism.

606 Accession of Harsha Vardhana.

609 Rise of the Chalukyas.

622 Era of the Hejira begins.

711 Invasion of Sind by Muhammad bin Qasim.

753 Rise of the Rashtrakuta Empire.

892 Rise of the Eastern Chalukyas.

985 The Chola Dynasty Rajaraja the Great.

1026 Sack of Somnath by Mahmud of Ghazni.

1191 Prithvi Raj Chauhan, King of

s Muhammad Ghori the first battle of in.

192 Muhammad Ghori defeats Prithvi Raj and battle of Tarain.

206 Qutbuddin Aybek establishes the Slave dynasty at Delhi.

221 Mongol invasion under Genghis Khan.

232 Foundation of the Qutub Minar

290 Jalaludin Firuz Khilji establishes the dynasty at Delhi.

298 Marco Polo visits India.

320 Ghiyasuddin Tughluk founds the Tughluk dynasty at Delhi.

333 Ibn Batutah arrives in India.

336 Founding of Vijayanagar (Deccan).

398 Timur invades India.

424 Rise of the Bahmani dynasty (Deccan).

451 The Lodi dynasty Bahlul Lodi ascends throne of Delhi.

469 The birth of Guru Nanak Dev.

489 Adil Shah dynasty at Bijapur.

490 Nizam Shahi dynasty at Ahmadnagar.

498 Vasco da Gama lands at Calicut.

510 Portuguese capture Goa Albuquerque Governor.

518 Kutab Shahi dynasty at Golconda.

526 First Battle of Panipat Babur defeats Lodis Establishment of the Mughal dynasty.

530 Humayun succeeds Babur.

539 Death of Guru Nanak Dev; Sher Shah defeats Humayun and becomes emperor of India.

555: Humayun recovers the Delhi throne from Eslam Shah, successor of Sher Shah.

556 Death of Humayun Accession of Akbar. Akbar defeats Hemu at the second battle of Panipat.

564 Akbar abolishes Jiziya or poll tax on Hindus.

565 Battle of Talikota-An alliance of Muslim rulers in Deccan defeats and destroys Vijayanagar Empire.

571 Foundation of Fatehpur Sikri by Akbar.

576 Battle of Haldighat. Akbar defeats Rana Pratap Singh of Mewar.

582 Akbar proclaims *Din Ilahi* or Divine Faith an attempt at synthesising Hinduism and Islam.

597 Akbar completes his conquests. Death of Rana Pratap.

600 English East India Company constituted.

602 Netherlands East India Company formed

604 Compilation of "Adi Granth" the Holy Book of Sikhs.

605 Death of Akbar and the accession of Jahangir.

606 Martyrdom of Guru Arjan Dev.

609 The Dutch open a factory at Pulicat.

1611 The English build a factory at Masulipatam.

1627 Death of Jehangir Accession of Shah Jehan Birth of Shivaji.

1631 Death of Shah Jehan's wife Mumtaz Mahal The building of the Taj Mahal.

1639 Fort St. George at Madras by the English.

1658 Aurangzeb becomes Emperor of Delhi.

1664 Shivaji assumes royal title.

1666 Birth of Guru Gobind Singh

1675 Martyrdom: Guru Tegh Bahadur

1699 Guru Gobind Singh creates 'Khalsa'.

1707 Death of Aurangzeb.

1708 Guru Gobind Singh dies.

1720 Accession of Baji Rao Peshwa at Poona.

1739 Nadir Shah of Persia conquers Delhi.

1742 Marathas invade Bengal Dupleix, French Governor of Pondicherry.

1748 First Anglo-French war.

1757 Battle of Plassey The English defeat Siraj-ud-Daulah Mir Jafar, Nawab of Bengal.

1760 Battle of Wandiwash The English defeat the French.

1761 Third Battle of Panipat Ahmed Shah Abdali, the ruler of Afghanistan, defeats the Marathas Maratha imperialism checked.

1764 Battle of Buxar the English defeat Mir Kasim.

1765 The English get Diwani Rights in Bengal, Bihar and Orissa Clive, Governor in Bengal.

1766 The English secure Northern Circars in the Carnatic.

1767-69 First Mysore war the British conclude a humiliating peace with Hyder Ali of Mysore.

1772 Warren Hastings, Governor of Bengal.

1773 The Regulating Act by the British Parliament.

1775-82 First Anglo-Maratha war: The Treaty of Salbai.

1780 Birth: Maharaja Ranjit Singh

1780-84 The Second Mysore War. The English defeat Hyder Ali.

1784 Pitt's India Act.

1790-92 Third Mysore War between the English and Tipu Treaty of Seringapatam.

1793 Permanent Settlement of Bengal.

1796 Marquess of Wellesley Governor General.

1799 Fourth Mysore War The English defeat Tipu Death of Tipu Partition of Mysore.

1801 The English annex the Carnatic.

1803-5 Second Anglo-Maratha War. British under Sir Arthur Wellesley inflict a crushing defeat on the Marathas at Assaye.

1817-19 Marathas finally crushed.

1828 Lord William Bentinck becomes Governor General Era of social reforms Prohibition of Sati (1829). Suppression of Thugs (1837).

- 1831 Rise of the Sikhs under Ranjit Singh.
- 1839 Maharaja Ranjit Singh dies.
- 1845-46 First Anglo-Sikh War—Sikhs defeated.
- 1848 Lord Dalhousie Governor General.
- 1848-49 Second Anglo-Sikh War Sikhs defeated in battle (1848). The British annex Punjab.
- 1853 First Indian Railway—Bombay to Thana.
- 1857-58 First War of Indian Independence.
- 1858 British Crown takes over the Indian Government Queen Victoria's Proclamation.
- 1861 Indian Councils Act Indian High Courts Act Indian Penal Code.
- 1868 Railway opened from Ambala to Delhi.
- 1877 Delhi Durbar The Queen of England proclaimed Empress of India.
- 1878 Vernacular Press Act.
- 1881 Factory Act Rendition of Mysore Mysore State restored to its original ruler.
- 1885 Ind. Nat. Congress—First meeting.
- 1892 Indian Council Act to regulate Indian administration.
- 1899 Lord Curzon becomes Governor General and Viceroy.
- 1905 First Partition of Bengal.
- 1906 Formation of the Muslim League.
- 1908 Newspapers Act.
- 1909 Minto-Morley Reforms.
- 1911 King George V and Queen Mary hold Durbar in Delhi. Partition of Bengal notified to create the Presidency of Bengal. The Imperial capital shifted from Calcutta to Delhi.
- 1914 The First World War begins.
- 1915 Defence of India Act.

- 1918 World War ends.
- 1919 Rowlatt Act intended to perpetuate the extraordinary powers enjoyed by Government during the war provokes country-wide protests. The massacre at Jallianwala Bagh. Ali brothers and Maulana Abul Kalam Azad start the Khilafat movement (for restoring the Turkish Khalifate) with Gandhian support. Perfect Hindu-Muslim accord. Montagu-Chelmsford Reforms offer limited provincial autonomy to Indians.
- 1920 Congress okays non-cooperation movement. Students leave colleges, lawyers leave practice. Bonfire of British clothes, etc. show popular dissatisfaction with the reforms.
- 1921 Moplah (Muslim) rebellion in Malabar. Visit of the Prince of Wales. Census of India.
- 1922 Civil Disobedience Movement. Congress makes Gandhiji sole leader of the satyagraha. Outburst of violence at Chauri Chaura leading to suspension of movement. Gandhiji.
- 1923 Swarajya Party started by C.R. Das and Motilal Nehru. Swarajists propose to enter councils and wreck the government from within. Khilafat movement fizzles out as Kemal Atatürk declares Turkey a secular state. Hindu-Muslim riots.
- 1925 Death of C.R. Das.
- 1926 Lord Reading expounds to the Montagu Commission the principle of self-government. Royal Commission on Agriculture. Factories Act.
- 1927 Indian Navy Act. Simon Commission appointed.

- 1928 Simon Commission comes to India. Boycott by all parties. All Parties Conference. Muslim League leaves the Conference.
- 1929 Lord Irwin Viceroy of India, announces Dominion Status for India. Launching of the Congress for Independence. On the midnight of August 31, Pandit Jawahar Nehru, President of Congress, hoists the National Flag at Lucknow.
- 1930 Jan. 26 observed as Indian Independence Day all over India. Civil Disobedience Movement continues. Gandhiji goes to Dandi Salt Lake. Repression loose by the government.



Jallianwalla Bagh Massacre, 1919

First Round Table Conference.

1 Gandhi-Irwin Pact. Second Round Table Conference. Census of India.

2 Suppression of Congress movement. Round Table Conference. The Communal. Poona Pact.

3 White Paper on Indian reforms.

4 Civil Disobedience Movement called

5 Government of India Act.

6 Death of King George V. Accession and of Edward VIII. Accession of George

7 Inauguration of Provincial Autonomy. Ministries formed in a majority of the

8 Resignation of Congress Ministries. deadlock in India.

9 Beginning of Second World War.

1 Japan enters the war. Attack on Pearl

2 Singapore falls to Japan. Japan occupies Malaya. The British evacuate Burma. Cabinet Mission to India. Both Congress and Muslim League refuse Cripps offer. Congress passes Quit India Resolution (Aug. 8). Congress leaders arrested and Congress declared illegal body (Aug. 9). Subhash Chandra Bose (Netaji) forms the Indian National Army in Burma, with the help of the Japanese. He

inaugurates the Government of Free India at Singapore.

1943 Bengal famine; Lord Wavell Viceroy and Governor General of India. Wavell's proposals for a settlement fall through as the Congress and the Muslim League could not agree.

1945 The Indian National Army under Bose surrenders to the British after collapse of Japan. National Army personnel tried for treason in India.

1946 Demonetisation of currency notes of the value of Rs. 500 and above (Jan. 12). Demonstrations against the trial of the INA men. The ratings of the Royal Indian Navy rise in open mutiny (Feb. 18). Cabinet Mission in India (Aug. 19). Cabinet Mission announces its plan for an interim government and a constituent assembly. The interim government is to be formed by reconstituting Viceroy's Executive Council. Both Congress and the Muslim League reject the proposal. Later the Congress accepts it. So the interim government is formed by inducting Congress nominees only. The Muslim League takes umbrage and starts direct action. Muslims attack Hindus in Calcutta and the rest of Bengal. Hindus retaliate. Riots break out. Viceroy persuades the Muslim League to come in. But the League declines to join the Constituent Assembly unless the demand for a separate state of Pakistan is conceded.

the National Movement

the National Movement or the movement for independence was a part of a larger spectrum of national resurgence, which touched almost all aspects of national life, religious, social, educational, cultural and economic. The progress in the different spheres varied in degree and in kind from region to region, but one common desire animated all - namely, gaining independence. How the British administration tackled this problem and how it finally ended in the partition of India and the creation of two independent states, India and Pakistan, is too long a story to be recounted in a few pages.*

In Lord Dalhousie laid down his office in 1858 and Canning took over as Governor General. The British Empire in India had extended to its geographical boundaries - from Indus in the west to Bay of Bengal (Burma) in the east and from the Himalayas in the north to Cape Comorin in the south.

*Acknowledged quotations in the Section are from Tara Chand, *History of the Freedom Movement in India*, Vols. I-IV.

(Kanyakumari) in the far south. The British Indian dominion was made up of two distinct political segments - territories directly administered by the East India Company and those ruled by Indian princes who owed fealty to the company. For the first time in many years, peace seemed to have settled all over India.

But those who knew the antecedents leading to the establishment of *Pax Britannica* in India were skeptical of the apparent peace. The pacifist Lord Canning who succeeded the aggressive Lord Dalhousie as Governor General felt that the calm was ominous.

* In the summer of 1857 the massed clouds of discontent burst and the entire British dominion in India shook to its foundations.

This was the revolt of 1857, which the British historians have dubbed the *Sepoy Mutiny* and the Indian historians, the *First War of Independence*. True, it began as a mutiny of Indian soldiers against their British commanders. But it soon changed its character and became a fight against British rule as such.

Indian soldiers had broken out in open mutiny against British officers many times previously in 1806 at Vellore (Madras), in 1842 in Bengal, in 1844 in Sind, then in Bihar and Punjab. None of these had any political overtones. But the so-called Mutiny of 1857 differed radically in this respect.

The two elements military and political coalesced in the revolt of 1857. The Indian soldiers having massacred the British personnel, marched to Delhi in May, 1857. They proclaimed the aged Mughal Emperor Bahadur Shah II as the Emperor of India. Bahadur Shah promptly issued a proclamation urging upon the people of India Hindus and Muslims alike to end the tyranny and the oppression of the infidel and treacherous English.

It is not quite correct to describe the revolt of 1857 as a national revolt. For, at that time, India had not yet become a nation. The revolt itself was the last kick of a dying feudal order, led by a decadent aristocracy. The idea of a nation and therefore of nationality was a bequest of English education.

There is little doubt that the knowledge of English acquired by Indians in every part of the country facilitated inter-communication and expedited the process of national integration. The Indian middle class, steeped in English literature and history, gorged themselves with the ideas of *liberty*, *equality* and *fraternity* which the American War of Independence (1773-1787) and the French Revolution (1789) had glorified.

The immediate results of the 1857 revolt were three:

1. The administration of British India, until then under the control of the Board of Directors of the East India Company, was taken over by the British Government. Queen Victoria was proclaimed the Empress of India and the Governor General was designated the Viceroy and Governor General.

2. The British Indian army was re-organised. The quota of British personnel in the army was considerably enhanced and the artillery divisions were manned entirely by the British. In addition, many purely British regiments were formed.

3. The paramountcy of the British Government was proclaimed, that is to say, all ruling kings and

titular princes of India were declared feudatories of the British Crown. This proclamation raised many eyebrows among Indian princes, but it was little they could do in the matter.

With the indigo riots, the agitation for freedom acquired greater momentum. Meantime the spread of English education brought up a new generation imbued with new ideas and willing to fight a long drawn battle with the British for independence. At the same time, a vernacular *Fourth Estate* was slowly taking shape to express Indian aspiration.

This resulted in the promulgation of the *Vernacular Press Act of 1878* intended to muzzle the periodicals in Indian languages. The reason advanced by Lord Lytton, the Viceroy, was that the increasingly violent native press was directly provocative of rebellion. The people of India protested against the Act and appealed to the British government to repeal it. This was at last repealed by Lord Ripon in 1882.

Lord Lytton as Viceroy (1874-1880) fathered an offensive brood of laws and regulations. The *Arms Act* (which exempted Europeans) and the abolition of import duties on British goods among the more obnoxious performances of Lytton.

Lord Ripon's viceroyalty, otherwise beset by difficulties, was sullied by the infamous *Ilbert Bill*. This amended the Criminal Procedure Code and specified that only European judges could try European offenders for serious misdemeanours.

In 1883 the agitation over the Ilbert Bill continued. Surendranath Banerjee was arrested for an article he wrote in the *Bengali*. Soon a number of other persons for seditious articles followed. This accumulation of discriminatory laws, and prosecutions, roused the masses.

Some Englishmen in India felt the same. Henry Cotton and Allen Octavian Hume among them thought that an abiding concord between the government and the people had to be built.

Hume formed the Indian National Union in 1854. The aim of the Union was to oppose by constitutional methods all authorities hostile to the people here or in England, whose acts and decisions are opposed to the principles of the government of India laid down by the British Parliament and endorsed by the British Sovereign.

Indian National Congress

It was the Indian National Union formed by A.O. Hume that assumed the name Indian National Congress at the conference held in Bombay under the Presidentship of W.C.

Banerjee, a veteran lawyer of Calcutta, who attended by 72 delegates from all over India.

The birth of the Indian National Congress was an unprecedented phenomenon in the political history of India.

of India. It marked the entry of the new middle class into national politics. The middle class, a byproduct of the British Raj, was mainly composed of three classes: agricultural, industrial and professional. Each class had its own interests but a growing sense of nationality often extolled as patriotism drew them in a common programme of action. From 1885 onwards the Indian National Congress met every year. Its influence spread rapidly among the middle classes. Three main things engaged its attention: (1) representative government and expansion of the number and powers of legislative councils both in the provinces and at the centre, (2) Indianisation of public services, (3) Indian poverty.

The 19th century drew to a close to be remembered on December 30, 1898 Lord Curzon came down to India as Viceroy. Curzon was a brilliant intellectual-scholar, writer, speaker-but was inordinately ambitious, overwhelmingly obstinate, heedless of advice, contemptuous of opposition, self-righteous, unscrupulous and bloody.... The crowning ambition of Curzon was to destroy the political influence of the educated middle class, among whom the Bengali intelligentsia were the most prominent. So his attention was directed to Bengal.

A Royal Proclamation on 16th October, 1905, the Bengal Province was reduced in size and a new province called East Bengal was created. The scheme was condemned not only in India but also by the British Press.

The Indian National Congress, unanimously condemned the partition. In the two Bengali provinces over 2000 public meetings, attended from 10 to 50,000 people were held. In these meetings Hindus and Mohammedans joined in protests with equal zeal and earnestness. The rage with which Bengal faced its trial stirred the whole of India. The constitutional agitation so far pursued had not made an impact. The Swadeshi movement and boycott of foreign goods, became the mainstay of the freedom movement. Side by side open defiance of government orders, refusal to pay taxes and bandhs and *hartals* followed one after the other. The Congress adopted the boycott of foreign goods particularly cloth. The Swadeshi movement gave a fillip to indigenous industries especially in textiles.

Lord Minto who succeeded Curzon followed a cautious policy of admixture of the carrot and stick, that is, unflinching repression on the one hand and bonafide attempts at ushering in social reforms on the other. The 1905 session of the Congress at Banaras is in a sense, a turning point in the history of the Congress.

The president, Gopalakrishna Gokhale, a moderate himself, approved of aggressive agitation. From 1905 the Congress

started functioning as a permanent organization, though annual elections often led to a change of working personnel.

In 1906 the police broke up a Congress conference in Barisal (Calcutta). The delegates were lathi-charged. Eminent leaders were man-handled by the police. This unprecedented treatment meted out to a peaceful gathering led to a radical change in the character of the national movement. Hereafter, force was to be met by force. The white man's blood was to atone for the innocent blood drawn from inoffensive nationalists. This was a victory for the extremists. A crop of revolutionary leaders emerged: Aswini Kumar Dutt, Brahma Bhandhab Upadhyaya, Aurobindo Ghosh, Lajpat Rai and Bal Gangadhar Tilak. Tilak was from Maharashtra, and easily led the others. In Bihar, Khaparde emerged as the leader and Lajpat Rai led Punjab. While everybody supported the Swadeshi movement many disapproved of the boycott programme and still more, the terrorist activities. Their main fear was that this would alienate British public sympathy for Indian aspirations and harden the hearts of the rulers.

The Congress ranks sought a *via media* by appealing to Dadabai Naoroji, the grand old man of India to preside over the Calcutta session in 1907. Dadabai tried his best to placate both parties and proposed a new common platform for both, namely *Swaraj* or self-rule as the goal of the National Congress.

Fuller, the Lt. Governor of the newly created East Bengal province was a typical imperial bureaucrat. He exploited Hindu-Muslim differences of opinion to create faction. He openly supported the Muslim majority and discriminated heavily against the Hindu minority in the province. He let loose unbridled repression in East Bengal humiliating and insulting respected Hindu leaders, ruthlessly punishing teachers and students and carefully discriminating between Hindus and Muslims at every turn.

Minto, the Viceroy, did not approve of Fuller's policy as it violated the spirit of the central policy. The Secretary of State Morley fully endorsed the Viceroy's view point. Fuller did not agree with the views of his superiors in the matter and offered to resign rather than fight them. Fuller vacated the scene. But the seeds of distrust and suspicion between Hindus and Muslims which he had sown sprouted. The Muslims formed a political organization, tentatively named *Muslim League*, which published anti-Hindu and pro-government pamphlets.

Communal riots on a bigger scale occurred in 1907 at Comilla in Tripura district and in Jamalpur taluk of Mymensingh district. In future these riots were to become almost a daily occurrence everywhere in British India.

Differences of opinion regarding attitudes

and policies to be adopted in the National Movement came to a head in 1907 when the Congress met at Surat. The moderates (doves) in the Congress who included such statesmen as Gopala Krishna Gokhale, Phirozshah Mehta, Surendranath Banerjee and Madan Mohan Malaviya were against the extremist programme of action, lest it should strengthen the anti-Indian stance of the British public.

The extremists who also contained a group of celebrities like Tilak, Aurobindo Ghosh, Chandra Pal and Lala Lajpat Rai had no faith in the bonafides of the British Indian government or in the goodwill of the pro-Indian section of the British public. Leaders of the extremist faction wanted to capture the Congress and make it an instrument of revolutionary action.

Congress Presidents from 1885

1885 Bombay	W.C. Bannerjee	1927 Madras	Dr. M.A. Ansari
1886 Calcutta	Dadabhai Naoroji	1928 Calcutta	Motilal Nehru
1887 Madras	Badurddin Tyabji	1929 Lahore	Jawaharlal Nehru
1888 Allahabad	George Yule	1930 Karachi	Jawaharlal Nehru
1889 Bombay	Sir William Wedderburn	1931	Vallabhbhai Patel
1890 Calcutta	Sir Phirozshah Mehta	1932	R. Ambedkar
1891 Nagpur	P. Ananda Charlu	1933 Calcutta	Mrs. J.M. Sen Gupta
1892 Allahabad	W.C. Banerjee	1934 Bombay	Rajendra Prasad
1893 Lahore	Dadabhai Naoroji	1935 Lucknow	Rajendra Prasad
1894 Madras	Alfred Webb	1936	Jawaharlal Nehru
1895 Poona	S.N. Banerjee	1937 Fazipur	Jawaharlal Nehru
1896 Calcutta	Rahimtulla Sayani	1938 Zairpur	Subhas Chandra Bose
1897 Amravati	C.S. Nair	1939 Tripura	Subhas Chandra Bose
1898 Madras	A.M. Bose	(Subhas Chandra Bose was re-elected but had to resign. Rajendra Prasad was appointed in his stead.)	
1899 Lucknow	R.C. Dutt	1940-46	(Maulana) Abul Kalam Azad
1900 Lahore	N.G. Chandravarkar	1946 (July-Sept.)	Jawaharlal Nehru
1901 Calcutta	D.E. Wacha	1946-47 Meerut	J.B. Kripalani
1902 Ahmadabad	S.N. Banerjee	1948 Jaipur	Pattabhi Sitararam
1903 Madras	L.M. Ghosh	1950 Nasik	Purushotam Das Tandon
1904 Bombay	Sir Henry Cotton	1951 Delhi	Jawaharlal Nehru
1905 Banaras	G.K. Gokhale	1953 Hyderabad	Jawaharlal Nehru
1906 Calcutta	Dadabhai Naoroji	1954 Kalyan	Jawaharlal Nehru
1907 Surat	Dr. Rashbihari Ghosh	1955 Avadi	U.N. Datta
1908 Madras	Dr. Rashbihari Ghosh	1956 Amritsar	U.N. Datta
1909 Lahore	M.M. Malaviya	1957 Indore	U.N. Datta
1910 Allahabad	Sir William Wedderburn	1958 Prayag	U.N. Datta
1911 Calcutta	B.N. Dhar	1959 Nagpur	U.N. Datta
1912 Patna	R.N. Madholkar	1960 Bangalore	U.N. Datta
1913 Karachi	Syed Mohammad Bahadur	1961 Bhavnagar	Indira Gandhi
1914 Madras	Bhupendra Nath Basu	1962 New Delhi	N. Sanjiva Reddy
1915 Bombay	Sir S.P. Sinha	1964 Bhubaneswar	D. Sanjiva Reddy
1916 Lucknow	A.C. Mazumdar	1965 Durgapur	K. Kamaraj
1917 Calcutta	Mrs. Annie Besant	1966 Jaipur	K. Kamaraj
1918 (Special Session)	Hassan Imam	1968 Bangalore	S. Nijalingappa
1918 Delhi (Annual Session)	M.M. Malaviya	1969 New Delhi	C. Subramaniam
1919 Amritsar (Annual Session)	Motilal Nehru	1970 New Delhi	Jagjivan Ram
1920 Nagpur	C. Vijayaragavachariar	1971 Ahmedabad	D. Sanjiva Reddy
1921 Allahabad	C.R. Das (In Prison) Acting President	1972 Calcutta	Shankar Dayal Sharma
1922 Gaya	Hakim Ajmal Khan	1975 Chandigarh	D.K. Barve
1923 (Special Session)	Lajpat Rai	1976 New Delhi	Brahma Chandra Ghosh
1923 Kakinada (Annual Session)	Mohammed Ali Jinnah	1978 New Delhi	Indira Gandhi
1924 Belgaum	M.K. Gandhi	1983 Calcutta	Indira Gandhi
1925 Kanpur	Mrs. Sarojini Naidu	1984 New Delhi	Rajiv Gandhi
1926 Guhati	S. Srinivasa Iyengar	1991 New Delhi	P.V. Narasimha Rao

Repression and reforms

The year 1908 saw a hideous tug of war between the Government armed with powerful weapons of repression and armed people putting up resistance with all force of will and sacrifice against the might of the other.

Arrests and convictions became the order of the day. Outstanding leaders were either imprisoned or deported. Bipin Chandra Pal and Lajpat Rai went to self-imposed exile, Aurobindo escaped to Pondicherry, a French enclave and Tilak remained incarcerated in Mandalay.

The Minto Reforms of 1909 provided for the association of qualified Indians with the Government in deciding public questions. One member on the Governor General's Council was reserved for an Indian. Satyendra Sinha (later Governor of Raipur) was the first Indian to be appointed to the Governor General's Council as a member. In the Provincial Councils, the Muslim community got representation.

The reforms were intended to pacify unrest, but failed. The vicious chain of violence, repression and more violence remained unbroken in the mist of doubt and apprehension on the horizon. This satisfied the policy makers in Delhi and London. What they wanted was to boost the Muslim League as a counter to the Congress. They knew that the British was likely to create communal conflict and apparently welcomed it for that very reason. The First World War brought Britain into conflict with Turkey, whose Sultan styled himself the Khalif of all Muslims. That the Khalifate danger shook the passivity of the Indian Muslims and made them restive and thirsting for the sort of action.

The Montague-Chelmsford Report noted that the Muslims as a whole kept aloof from revolutionary activities from 1903 to 1910 since their attitude has been growing far less militant. At the (Royal) Coronation Durbar on December 12, 1911, two important decisions were made, one was the annulment of the partition of Bengal and the other the transfer of the capital from Calcutta to Delhi. The transfer of the capital evoked little or no enthusiasm among the Muslims. One salutary result was that the old Muslim leaders, who were pampered and indulged by the British found themselves practically ignored. Many of the old leaders like the Aga Khan and the Nawab of Awadh left the League. Fresh blood like M. A. Jinnah and Muhammed Ali became the leaders

of the organization.

The change in leadership helped to bring the Congress and League together. Both represented the middle class intelligentsia of India. The 1913 session of the League at Lucknow, foreswore the oft-repeated loyalty to the crown and adopted self-government under the aegis of the British crown as its political goal. In 1915 the Congress and the League chose the same place (Bombay) for their annual conference and most of the delegates of both organizations indulged in frequent exchange of ideas. With Turkey joining Germany against the allies in the first World War, the loyalty of the Indian Muslims to the British crown became suspect. The Muslim newspapers which supported Turkey were suppressed and repression was let loose on the Muslims.

Side by side, the British government adopted conciliatory tactics also, like promising that the Muslim holy places outside India will be protected by the allies. Meanwhile, Annie Beasant who had joined the Congress joined hands with Tilak in demanding Home Rule for India.

Montford Reforms, so called after Montague, the Secretary of State for India and Chelmsford the Viceroy, are contained in the Government of India Act 1919. Before the Act was passed, the British made the historic announcement (Aug. 20, 1917) that the policy of H.M.'s Government... *is that of increasing association of Indians in every branch of the administration and the gradual development of self-governing institutions with a view to the progressive realisation of responsible government in India as an integral part of the British Empire.*

With the defeat of Turkey and the abolition of the Sultanate, the Khalifate ceased to exist. This agitated all Muslims in India. The Muslims of the world had no religious head. In 1919 a conference at Lucknow, sponsored by Muslim leaders, the Ali brothers Muhammad Ali and Shaukat Ali and Abul Kalam Azad decided to form an All India Khilafat Committee. Seth Chotani of Bombay was elected President and Shaukat Ali, brother of Muhammad Ali, the Secretary. Shaukat Ali, who was at the time in prison, was to take charge as soon as he was released.

The Rowlatt Act, so-called after the President of the Committee, which was constituted to review the measures to be adopted to contain the national movement, sought to perpetuate the extraordinary powers conferred on the government during the war period. These were framed as 2 Acts (collectively known as the Rowlatt Act)

which the Imperial Legislative Council dutifully passed in March, 1919. This Act roused the ire of all Indians, Hindus and Muslims alike. Muhammad Ali Jinnah, later to become the President of the Muslim League and the founder of Pakistan, resigned his seat in the Council. In his letter of resignation to the Viceroy he wrote 'In my opinion a government that passes such a bill or such laws in times of peace forfeits the claim to be called a civilized government. The Rowlatt Act, in point of fact, proved a shot in the arm for the Khilafat movement.'

Punjab saw the worst manifestation of British power. Its Governor, Michael O. Dyer seemed to love brutal savagery. He warned the public that they would be held responsible for the proper conduct of the public meetings and for the language used in the speeches. On 10th April, when the news of Gandhiji's arrest reached Lahore, the students took out a protest procession. The police opened fire on the unoffending processionists wounding many.

Worse was the fate of Amritsar, which held protest demonstrations. Satyapal and Kitchlew were prohibited from speaking at Amritsar and were arrested for deportation. The news of deportation infuriated the people. Crowds marched to the Deputy Commissioner's office to demand the cancellation of the order of deportation. Mounted police fired upon the crowd, killing some and wounding many.

A protest meeting against this outrage was arranged at Jallianwallabagh on the 13th. The government, in anticipation of trouble, handed over Amritsar to the army under the command of General Dyer. Jallianwallabagh turned out to be a deadly trap. An enclosure, protected by high walls, had only one small entrance on one side and three or four small openings on the other. As the crowd filled the enclosure, Dyer and his troops appeared at the main entrance and bullets rained on the crowd. Men died in hundreds, while most of those who sought escape through the narrow openings on the other side were crushed to death in the melee. The massacre at Jallianwallabagh was an act of unprovoked savagery, unequalled in history. It shook the country from end to end.

The first Khilafat Conference was held in Delhi on the 23rd November, 1919. It presided over by Fazlul Huq, Gandhiji, M. A. Jinnah and Malaviya among the Congress leaders present. On the second day Gandhiji was elected to the chair. In 1920, when the Congress Committee met at Delhi, Gandhiji presented a programme of *non-cooperation* which was accepted by the Committee.

Leading lawyers like Motilal Nehru and B. R. Das, gave up their profession. Subhash Chandra Bose resigned from the Indian Civil Service. In 1st August 1920 when it started to 6th February 1922 when it was suspended, the non-cooperation movement moved in a crescendo. The boycott of foreign clothes and bonfires were becoming popular in big cities like Calcutta, Bombay, Madras and Allahabad. The non-cooperation movement was a roaring success.

On the 15th February, 1922 a small town Chauri Chaura in the district of Gorakhpur in United Provinces became the scene of a violent clash between police and some processionists. The police took refuge in the station but the mob set fire to the station. Gandhiji responded by suspending the non-cooperation movement, as he considered Chauri Chaura an open violation of non-violence.

The sudden suspension of the movement occasioned violent differences of opinion among the Khilafists. Many of them lost faith in Gandhiji's leadership. Taking advantage of this division in the ranks, the government arrested Gandhiji on March 10, 1922. He pleaded guilty and was sentenced to the severest punishment. He was confined to 6 years imprisonment and confined in Yerwada Central Prison in Pune (then Poona). The Khilafat Movement had ultimately fizzled.

The Swaraj Party founded by C. R. Das and Motilal Nehru in 1923 was desirous of working for Montford Reforms, while the Nationalist Extremists were opposed to it. The Swaraj Party, consisting of Moderates and Liberals, contested the 1920 elections and some of them were elected, Srinivasa Sastri and Sivaswami Sastri among others. They formed a sort of opposition and succeeded in defeating many government motions and abolishing certain obnoxious laws as the Press Act of 1910.

Pacts and conferences

The prerequisite of Swaraj or independence was an accord between the Hindus and the Muslims. All leaders were agreed on it. The Hindu majority believed that Swaraj meant *Muslim Raj* while the Muslim minority

was afraid that the Hindu majority would oppress them.

The Moplah (Muslims) rebellion of 1921 in Kerala (then British Malabar) transformed the massacre of Hindu landed families

tion of Hindu properties and Hindu temples. forcible conversion of some Hindus was started.

The revival of the Hindu Maha Sabha in 1923 added fuel to the fire. In 1924, communal fires seemed to hold the whole of India in its grip. Its worst manifestation was at Peshawar (North West Frontier Province) on the 9th and 10th September 1924. There were large scale killings of Hindus and looting of Hindu properties and the Hindu population had to be evacuated from the town.

The suspension of the non-cooperation movement following the Chawri Chawra incidents and the annulment of the Khilafat (1924) left nationalist India in a political vacuum. Gandhiji felt the need for further political agitation was taken up on organizational and educative build-up was necessary. Although his term of imprisonment ended in 1928 he was unconditionally released in 1931 for reasons of health.

Presiding over the Belgaum Conference in 1931, he laid down the basic programme. He told the delegates, 'Go throughout your districts and spread the message of *Khaddar*, the message of Hindu-Muslim unity and the evils of untouchability. Take up in hand, the youth of the country make them the real soldiers of Swaraj.'

In 1926 he retreated to his Ashram at Gandhinagar and spent an year of silence, during which he concentrated on the expansion and popularisation of the Khadi programme. On the occasion of his year of silence, he declared, 'I have come to the conclusion, that we can have *Poorna Swaraj*, even *Rama Raj*, if we fulfil the triple programme that is Khadi, Hindu-Muslim unity and the abolition of untouchability.'

While the political terrain looked like a desert, the hopes of independence a mirage, communal tensions continued to rock the country. In 1925, Swami Shraddhananda was murdered by a Muslim fanatic. In 1927 the Frontier Muslimes rose against the Hindus which led to their deportation to Peshawar.

In 1927 a Parliamentary Commission was appointed to look into the question of Constitutional Reforms for India and make suitable recommendations. The Commission was headed by Lord John Simon, a leading constitutional lawyer of Britain and a member of Parliament. The Commission visited India in 1928 and travelled throughout the country collecting evidence. The Congress boycotted the commission. The Liberal Federation led by Sir Tej Bahadur Sapru did the same. Even the Muslim League joined the boycott.

While the Commission doggedly pursued its programmes seemingly oblivious of stormy seas and angry protests, the Government of India felt the impact of the storm and was forced

to do something to appease the Indian public. In 1929 Lord Irwin, the Viceroy declared that the natural issue of India's Constitutional progress was the attainment of *dominion status*. The statement also proposed to hold a Round Table Conference on the subject as soon as possible.

Meanwhile on March 16, 1927 the Council of State passed a resolution at the instance of C. Sankaran Nair recommending to the Government that no steps towards responsible Government be taken until Hindus and Muslims agreed to dispense with separate electorates.

While the talks continued Gandhiji decided to launch Satyagraha and advised the Viceroy about his decision. His first act was to go to Dandi and make salt which was then a government monopoly. He set out on the march at the age of 61 in March 1930. He reached Dandi with his followers on April 5, 1930. He walked into the sea waters and returning took a lump of salt from the salt fields and thus violated the law.

All repressive laws were soon brought into force. The repealed Press Act of 1910 was revived. Gandhiji and a lot of other outstanding leaders were arrested. In the agitation that followed some 100,000 persons were reckoned to have been imprisoned.

It was expected that with the incarceration of Gandhiji on May 5 at Yervada Jail and the imprisonment of the other leaders the movement would dissipate. The effect was just the contrary. Satyagraha became a way of life for millions of Indians and the leaderless movement grew apace every day.

In the face of the growing agitations, the Government of India decided to summon a Round Table Conference in London. Congress leaders like Gandhiji who were in prison were not invited since they laid down a condition precedent for the Conference, namely the announcement that *Poorna Swaraj* for India was the ultimate objective of the Round Table Conference.

The First Round Table Conference was opened by King George V on November 12, 1930. The King observed, 'Ten years is but a brief span in the life of any nation but the decade has witnessed...a quickening and growth in ideals and aspirations of nationhood, which defy customary measurement of time.'

This was only too true for the progress in nationalist growth during the decade was unique. If the Round Table Conference achieved nothing else it evolved a new concept of true India a federation consisting of the British administered provinces and states ruled by Indian princes.

This was a magnificent objective, a great and mighty conception, as Lord Reading put it. For the rest, the conference was a dismal failure.

The British authorities realised that there can be no abiding solution of the Indian question,

without the active cooperation of the Congress leaders. As a first step towards reconciling the Congress, Gandhiji and the other leaders of the Congress were released from jail on January 26, 1931.

Gandhiji on release felt that he wanted peace but with honour. Britain also wanted peace but without trouble. But first, the impasse had to be broken. So Gandhiji wrote to the Viceroy, asking for an interview. A pact was agreed upon during the interview, Gandhiji was spiritualism personified. Lord Irwin was a devout Christian at the bottom. It was this common character that blossomed forth as the Gandhi-Irwin Pact in March 1931.

The Gandhi-Irwin pact was ratified by the Congress at its Karachi Session presided over by Vallabhai Patel on March 29, 1934. The *Second Round Table Conference* which opened on 7th September 1931 was distinguished by the fact that the Congress participated and was represented by Gandhiji as the sole delegate of the Congress.

By this time, a National government by Ramsay Macdonald was formed in Britain. It was dominated by the Conservative Party. Sir Samuel Hoare succeeded Wedgewood Benn as the Secretary of State for India, while Lord Willingdon replaced Irwin as Viceroy. These changes complicated matters. The British authorities wanted to exploit the communal tangle to the utmost.

A Minorities Sub-Committee was appointed by the Second Conference, presided over by the British Prime Minister. Here all minor groups agreed with the Muslim League on one point that their interests should be maintained and protected, whatever from the Constitution assumed. It was difficult to provide such a blanket assurance to all minorities big and small. The conference con-

cluded without reaching any decision.

When Gandhi returned to India in December 1931 the country was labouring under a lot of repressive laws called Ordinances. 15 Ordinances were passed in 1931 alone. The only remedy left was to resume civil disobedience.

In the North West Frontier Province Asaf Ali Gaffar Khan (since known as the Frontier Gandhi) raised a volunteer corps of one lakh Pathans called the Servants of God and affiliated it to the Congress.

The *Third Round Table Conference* met in London on November 17, 1932 and continued its deliberations till December 24. After the end of the conference the British Government published a White Paper which practically reproduced the Simon Commission recommendations but added a scheme for a Federal Government if the Princely States agreed. The White paper in due course became the Government of India Act 1935.

The Act of 1935 provided two alternate constitutions for the Central Government: one a General Government consisting of British provinces and Indian States, that is, if a majority of Indian States were willing to accede to the Federal Government. This never happened. The alternative was to work the 1919 Act with some modifications. This was the alternative finally accepted. In this case all previous Acts, the Governor-General would have overriding authority in all matters.

In the election Congress won, with a clear majority, in five provinces Madras, Bihar, Central Province, United Province and Orissa. In the other provinces Congress acquired a sizeable number of seats. In 1937 the Congress was in charge of the governments in seven provinces and formed interim ministries. In the remaining provinces Punjab, Bengal, Assam and Sindh non-Congress parties took office.

The Partition

Though partition of India broke into history suddenly and ruthlessly, it had been in the making for a long time. Its roots were visible in the Hindu-Muslim riots which started as early as 1881 and continued intermittently.

The British administration took advantage of these riots so as to encourage the Hindu-Muslim conflict and perpetuate it. These were only the apparent causes. The real reasons were more political than religious.

The formation of the All India Muslim League at Dacca (now Dhaka) in December, 1906, provided a focal point for Muslim political aspirations. In 1937, when the Congress and the

Muslim League started working provincially, the rivalry between the two organisations came into the open.

In 1937, Jawaharlal Nehru wrote to Jinnah. In the final analysis, there are only two forces in India today British Imperialism and the Congress representing Indian Nationalism, he replied pointing out (1) that the Hindu-Muslims had nothing in common and (2) that the Muslims of India constituted a separate nation and therefore needed a separate government. The rift was complete. The partition of India was only a question of time.

The outbreak of the Second World War

menaced with Hitler's invasion of Poland on September 1, 1939, called for a complete change of policy on both sides the British Indian Government and the National Congress. India declared a belligerent nation by Britain on September 3, 1939, and the British Indian administration was placed on a war footing. The war lasted 6 years, till September 1945. During this period there was a lull in national agitation. The Congress, as a whole supported the demobilized allied countries, led by Britain but resented the fact that it was not taken into consultation in declaring India a belligerent nation. In the circumstances, all that the Congress could do was to demand an immediate assurance from Britain, that independence would be given to India, as soon as the war emergency was over.

The British Government paid no heed to this demand. The Congress reacted by asking all its provincial Congress ministries to resign (October 1939). The Congress ministries resigned.

In March 1940, at its annual session in Ramgarh the Congress demanded complete independence and a Constituent Assembly to draft a constitution for free India. In the same month, the Muslim League at its Lahore session demanded a separate state for the Muslims of India.

In March 1942, the British Government sent Stafford Cripps to India with proposals for a new constitution. The Cripps proposals were found unsatisfactory and were rejected both by the Congress and the League. In May 1942, Gandhiji called on Britain to 'Leave India to God. If it is too much, then leave her to anarchy'. In August 1942, the Congress working committee considered Gandhiji's call to Britain and passed the famous 'Quit India' resolution.

In 1945, Lord Wavell, the Viceroy, announced

that he was holding a conference in Simla to consider the steps necessary to advance self-government for India in the near future. All Congress leaders, then in prison, were released. The Simla conference (June-July 1945) turned out to be a fiasco. But by the time, (July), a Labour Government came into power in Britain. The Labour Government took serious notice of the Indian situation.

The Labour Secretary of State for India, Lord Pethick-Lawrence announced that a parliamentary commission would be visiting India to negotiate the question of Indian independence. This delegation, later famous as the Cabinet Mission, announced its constitutional scheme, which implicitly recognised the right of the Muslims to have a state of their own. While the Muslim League accepted the proposals, the Congress rejected it.

This was followed by riots. The Great Calcutta Killings of August 16 to 18, 1946, were the first of the riots. Then followed the killings in West Punjab, where the Muslims were in a majority. The Congress in desperation demanded the partition of Punjab.

Lord Mountbatten who succeeded Wavell as Viceroy in March 1947, boldly announced the partition of India. The provinces where the Muslims formed the majority were to be constituted into a separate state Pakistan.

Thus, parts of Punjab (West Punjab) and Bengal (East Bengal) and the whole of the provinces of Sind, Baluchistan and the North West Frontier became Pakistan. The rest of India formed another State. The Indian Independence Act, passed by the British Parliament (July 1947), formalised the division of India into two fully independent states India and Pakistan.

father of the Nation

Mohandas Karamchand Gandhi (1869-1948), when he entered public life, was at first hailed as the Mahatma (Great Soul) and was generally called Mahatma Gandhi. Since his death he has been universally acclaimed as the Father of the Nation. Gandhiji started his public career in South Africa, where the white race ruled Indians and native Africans alike were treated as slaves and outcasts. He entered Indian public life through the Indian National Congress, which was dominated from 1920 onwards. He was the architect of the Indian nation and is rightly called the Father of the Nation.

The important dates and events of his life are briefly described below:

1869 October. 2: Born at Porbandar, Kathiawar, India, son of Karamchand and Putlibai Gandhi.

1883: Married Kasturba.

1888: Sailed from Bombay for England to study law.

1891 Summer: Returned to India after being called to the Bar. Began to practise law in Bombay and Rajkot.

1893 April: Sailed for South Africa to become a lawyer for an Indian firm. Found himself subjected to colour discrimination.

1894 May: Organized the Natal Indian Congress.

1899: Organized Indian Ambulance Corps for the British in the Boer war.



1901: With the family embarked for India.
 1901—02: Travelled extensively in India, attended Indian National Congress meeting in Calcutta and opened law office in Bombay.
 1902: Returned to South Africa at the request of the Indian community.
 1904: Established the weekly journal *Indian Opinion*, Organized Phoenix Farm near Durban.
 1906 September: First Satyagraha campaign in protest against proposed Asiatic ordinance directed against Indian immigrants in Transvaal.
 1907 June: Organized Satyagraha against compulsory registration of Asiatics (The Black Act).

unconditionally in expectation of a compromise.
 1914 July: Returned to India, leaving Africa for ever.
 1915 May: Established Satyagraha near Ahmedabad.
 1917: Moved Ashram to new site on Sabar River. Led successful satyagraha campaign for rights of peasants on indigo plantations in Champaran. Defied order to leave area and was arrested at Motihari and tried, but was withdrawn.
 1918 February: Led strike of millworkers in Ahmedabad. Millowners agreed to arbitration.

1908 January: Trial for instigating satyagraha and sentenced to two months imprisonment in Johannesburg. First imprisonment. Summoned to court by General Smuts. Refused to appear; was released from jail.

February: Arrested and wounded by police. Extremist for his treatment with Smuts.

August: After breaking agreement and 'satyagraha' campaign began with fire of registration certificates.

1909 February: Sentenced to three months imprisonment in Kruisfontein and Pretoria.

June: Sailed for England to present his case.

1910 May: Visited Tolstoy Farm in Johannesburg.

1913 September: Helped campaign against nullification of marriages not celebrated according to Christian rites. Satyagraha campaign. Led 2,000 Indian workers from New Castle to Transvaal border.

November: Arrested for third time. Days.

December: Released.

his three-day fast (his first fast in India).
 March: Led satyagraha for peasants in Kheda.
 April: Organized nationwide hartal suspended activity for a day against the Rowlatt Bills.
 May: Fasted at Sabarmati for three days in penitence violence and suspended satyagraha campaign which he called a Himalayan miscalculation because people were not disciplined enough.
 June: Became Editor of English weekly *Young India* Gujarati weekly *Navajivan*.
 1920 April: Elected president of All India Home League. Successfully urged resolutions for a satyagraha campaign of non-co-operation.
 1921: Resolved to wear only a loin cloth to propagate homespun cotton and to signify his identification with the people. Mass civil disobedience, thousands went to jail. Gandhi invited with sole executive authority on behalf Indian Congress.
 1922: Suspended mass disobedience because violence at Chawri Chawra and undertook a three-day fast of penance at Bardoli. Arrested at Sabarmati on charge of sedition for articles in *Young India*. Pleaded guilty in a famous statement at the great trial in Ahmedabad before Judge Broomfield. Sentenced to six years imprisonment in Yervada jail.
 1929: Arrested for burning foreign cloth in Calcutta and fined one rupee.
 1929 December: Congress session at Lahore called for complete independence and a boycott of the legislature. January 26 proposed as Independence day. Third all-India satyagraha campaign.
 1930 March 12: Set out from Sabarmati with 200 volunteers on historic Salt March 200 miles to the sea at Dandi. April 6: Broke salt law by picking up a handful of salt up at seashore. Arrested by British policemen at Karadi and imprisoned in Yervada jail without trial. One hundred thousand persons arrested.
 1931 January: Released unconditionally with other Congress leaders. March: Gandhi-Irwin (Viceroy) Pact signed, which ended civil disobedience. August: Sailed from Bombay for the Second Round Table Conference in London. Dec: Returned to India. Authorised by Congress to renew satyagraha campaign (fourth nation-wide effort).
 1932 January: Arrested in Bombay with Mahatma Patel and detained without trial at Yerwada prison.
 September. 20: Began fast unto death while imprisoned in protest against British action giving separate electorate to untouchables.
 September 26: Concluded fast in the presence of Rabindranath Tagore after the British accepted Yervada Pact.
 1933: Began weekly publication of *Harijan* in place of *Young India*.
 July: Disbanded Sabarmati Ashram which then

became centre for removal of untouchability.

November: Began ten-month tour of India to help end untouchability.

1934 October: Launched All India Village Industries Association.

1940 October: Launched limited, individual civil disobedience campaign against Britain's refusal to allow Indians to express their opinions regarding World War II. 23,000 persons imprisoned within a year.

1942: Met with Sir Stafford Cripps in New Delhi but called his proposals a postdated cheque; these were ultimately rejected by the Congress. Congress passed Quit India resolution the final nation-wide Satyagraha campaign with Gandhi as the leader. Arrested with other Congress leaders and Kasturba and imprisoned in Aga Khan Palace, near Poona. Revolts in many parts of the country.

1943 February 10: Began fast at Aga Khan Palace to end deadlock between Viceroy and Indian leaders.

1944 February 22: Kasturba died in detention at Aga Khan Palace at the age of 74.

May 6: After decline in health, was released unconditionally from detention (this was his last imprisonment; he had spent 2,338 days in jail during his life-time).

1946: Began four-month tour of 49 villages in East Bengal to quell communal rioting over Muslim representation in provisional government.

1947: Toured Bihar to lessen Hindu-Muslim tensions. Began conferences in New Delhi with Lord Mountbatten and Jinnah.

May: Opposed Congress decision to accept division of country into India and Pakistan. Fasted and prayed to combat riots in Calcutta as India was partitioned and granted independence. Visited Delhi and other neighbouring areas to stop rioting and to visit camps for refugees.

1946 onwards: Gandhiji's efforts were concentrated on effecting Hindu-Muslim accord. Hindu-Muslim riots had broken out all over India, ever since the League President Jinnah, rejected the Cabinet Mission Plan and proclaimed August 16, 1946 as Direct Action Day. It was never clarified what Direct Action really involved. But the Muslims responded to this call with vengeance. The great Calcutta killings of August 16/18 were the first bitter harvest of the Direct Action Day. Gandhiji visited many of these areas Noakhali for instance to restore communal amity.

1948: Gandhiji undertook a fast for 5 days to bring about communal unity. On January 30, while holding a prayer meeting at Birla House, Delhi, Gandhiji was shot dead by a Hindu fanatic Nathuram Vinayak Godse, who was deadly opposed to Gandhiji's efforts to bring about Hindu-Muslim amity. Thus ended the life of the greatest Indian since The Buddha.

Freedom and after

British Government announced on February 20, 1947 its intention to quit India by June 1948. Lord Mountbatten was named Viceroy to arrange the transfer of power. He assumed office on March 24 and broadcast his plan for a partition of India.

Here is a chronology of events thereafter.

1947: July 1. British Parliament passes the India Independence Act and fixes August 15 for the transfer of power. August 15. Partition of India into India and Pakistan. Power transferred. Lord Mountbatten becomes Governor General of India and Muhammed Ali Jinnah, Governor General of Pakistan.

1948: January 30. Assassination of Mahatma Gandhi. September 11. Death of M.A. Jinnah. The Government of India occupies the Nizam's Hyderabad State.

1949: November 26. Constitution of India adopted by the Constituent Assembly.

1950: January 26. Constitution of India comes into force. December 15. Sardar Patel dies.

1951: The first general election in India. First Amendment to the Constitution.

1952: Dr. Rajendra Prasad elected Rashtrapati (Head of State).

1954: Panch Sheel agreement between China and India.

1955: Avadi session of the Indian National Congress adopts a socialistic pattern of society for India.

1956: Life insurance nationalized; States Reorganization Act.

1957: Second General Election. Rajendra Prasad elected for a second term.

1958: Metric system of weights and measures introduced.

1959: Swatantra Party formed.

1960: Bombay bifurcated into Maharashtra and Gujarat States.

1961: India occupies the Portuguese enclaves of Goa, Daman and Diu.

1962: Third general election in India. Dr. Radhakrishnan elected President. Nehru forms the third congress ministry. September 19. China attacks India on the northern border.

1963: Gold Control Order. February 28. Rajendra Prasad dies. Nagaland becomes a state of the Indian Union.

1964: May 27. Jawaharlal Nehru dies. Lal Bahadur Shastri becomes PM. Communist Party of India splits into right and left.

1965: Indo-Pakistan war in the Rann of Kutch. June 30. Cease-fire in the Rann.

1966: Tashkent meeting between Lal Bahadur Shastri and Ayub Khan. Agreement reached January 11. Shastri dies at Tashkent. January 19. Indira Gandhi elected Prime Minister. Dr. Homi J. Bhabha dies in a plane accident. The States of Haryana and Punjab come into being.

1967: Fourth general election. Indira Gandhi elected Prime Minister. Dr. Zakir Hussain elected President. Earthquake at Koyna (Maharashtra).

1969: January 14. Madras State renamed Tamil Nadu. May 3. Zakir Hussain dies. V.V. Giri becomes Acting President. July 19. Nationalization of 14 leading banks by Presidential Ordinance. August 20. Giri elected President. G.S. Pathak Vice President. Cong. party splits. Indira Gandhi forms her own Congress with Jagjivan Ram as President.

1970: February 14. Supreme Court holds nationalization of banks illegal. Presidential ordinance revalidates nationalization. April 2. State of Meghalaya comes into being. Privy purses and special privileges of former Indian rulers abolished. November 2. Dr. C.V. Ramaswami Reddy dies.

1971: January 25. Himachal Pradesh becomes a State. February 8. K.M. Munshi dies. Indira Congress wins the mid-term elections for Lok Sabha. Indira Gandhi becomes PM. May 13. General Insurance nationalized. December 3. Pakistan attacks India in the west. India recognizes Bangladesh. Indian army marches into Bangladesh and joins hands with Mukhti Bahini. Pakistan army in Bangladesh surrenders to the Indian Commander. December 17. War ends.

1972: January 20. Manipur, Meghalaya and Tripura become states. Arunachal Pradesh and Mizoram become Union Territories. April. Dacoits of Madhya Pradesh surrender to Jayaprakash Narain. September 18. Government of India announces increase of minimum bonus to workers from 4% to 8.33%. December 28. C. Rajagopalachari dies.

1973: Justice Ajit Nath Ray named Chief Justice of the Supreme Court, superseding the three senior most judges. Justice Shelat, Hegde and Grover resign in protest. May 31. Mohan Kumaramangalam, Central Minister, dies in an air crash near Delhi. November 1. Mysore changes its name to Karnataka. 24. E.V. Ramaswami Naicker (LVR), founder of the Dravida Kazhagam dies.

1974: May 18. Jaya Prakash Narayan starts Citizens for Democracy movement. Atomic device exploded at Pokhran in Rajasthan. July

17. J.P. Narain leads an agitation for dissolution of the Bihar Assembly. August 20. Fakhruddin Ali Ahmed elected President. B.D. Jatti Vice-President. December 1. Sucheta Kripalani dies.

1975: January 2. L.N. Mishra, Railway Minister, dies in a bomb blast at Samastipur Railway Station. 10. India accords recognition to the Palestine Liberation Organization. 11. Oil struck in third Bombay High rig.

April 15. J.P. s People s March to Parliament. India recognizes Sihanouk Government in Cambodia. 17. Dr. S. Radhakrishnan, former President, dies. 19. Indian satellite Aryabhata launched from a cosmodrome in Soviet Union.

May 16. Sikkim joins Indian Union as the 22nd State. 21. Farakka Barrage dedicated to nation.

June 25. National emergency declared and censorship introduced.

July 1. Prime Minister announces 20-point economic programme.

August 5. The RSS, Anand Marg, Jamat-i-Islami and 23 other organizations banned. Parliament approves Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA). MISA bill approved by the Parliament.

September 26. Constitution (39th Amendment) Bill 1975, placing election of the President, the Vice President, the PM and the Speaker of the Lok Sabha beyond the scrutiny of the judiciary, approved by Parliament. Calcutta and Madras on TV map of India

October 2. K. Kamaraj dies. 24. Bonded labour abolished by Ordinance.

December 29. D.K. Barooah elected Congress President.

1976: January 6. Baliram Bhagat elected Lok Sabha Speaker. 9. President suspends several freedoms guaranteed by Article 19 of the Constitution. 24. Burmah Shell nationalized, becomes Bharat Refineries.

February 4. Lok Sabha s life extended by one year. 17. Urban Ceilings Act comes into force.

November 2. Lok Sabha passes the 42nd Constitution Amendment Bill making India a Socialist Secular Lok Sabha votes to extend its own life by another year

1977: January 18. The President dissolves Lok Sabha.

February 3. Government relaxes rules of Emergency to permit normal political activity and electioneering. 11. President Fakhruddin Ali Ahmed passes away; B.D. Jatti sworn in Acting President.

March 21. Internal Emergency promulgated on June 25, 1975 withdrawn. 22. Janata and its allies gain absolute majority in Lok Sabha. Indira Gandhi resigns. 24. Ban on RSS and 26 other organizations lifted. A.K. Gopalan, Marxist leader, dies in Trivandrum. Morarji Desai elected leader of JP and sworn in PM. 27. Sanjiva Reddy elected Speaker of the Lok Sabha. Government revokes the external emergency promulgated on December 3, 1971.

April 30. Nine Congress-ruled States placed



Jawaharlal Nehru being sworn in as the Prime Minister of India on August 15, 1947

under President's rule. Janatha Party formed.

May 5. Chandra Shekar chosen President of the Janatha Party.

June 3. K. Brahmananda Reddi elected President of the Indian National Congress.

July 21. Sanjiya Reddi elected President of India. K.S. Hegde elected Lok Sabha Speaker.

September 10. The Planning Commission decides to introduce Rolling Plan concept.

November 5. Indira Gandhi arrested and released unconditionally. The External Affairs Minister A.B. Vajpayee addresses UN General Assembly in Hindi.

1978: January 16. Currency notes of the denominations of Rs. 1,000, Rs. 5,000 and Rs. 10,000 are demonetised.

February 2. The Indian National Congress (I) recognized as a national party and allotted the election symbol hand.

March 1. Justice Y.V. Chandrachud is sworn in as the Chief Justice of India. Swaran Singh is elected Congress President.

June 18. The Karakoram Highway, linking Gilgit in Pakistan-occupied Kashmir with Sinkiang in China, is opened.

December 19. The Lok Sabha expels Mrs.

Indira Gandhi, from the House and sentences her to imprisonment for a term lasting until its prorogation. 26. Indira Gandhi is released from jail.

1979: January 6. Rohini-200, first monsoon experimental rocket, launched from Thumba.

February 11. The Cellular Jail in Andaman and Nicobar declared a national memorial.

June 3. Soviets launch India's second satellite Bhaskara.

July 15. Morarji Desai resigns as Prime Minister. 17. Jagjivan Ram elected Janata parliamentary party leader. Charan Singh is PM heading Janatha (S)-Congress coalition and Jagjivan Ram is leader of the opposition in the Lok Sabha.

August 12. Damburst floods Morvi and Lilapur in Gujarat. Over 1000 dead. 21. President dissolves Parliament, orders year-end general elections and asks Charan Singh to head a caretaker government. 31. M. Hidayatullah, consensus choice of political parties, as Vice-President of India.

October 2. Operation (Milk) Flood-II launched. 8. Jaya Prakash Narayan dies. 17. Supreme Court stays the execution of all death sentences. Mother Teresa awarded Nobel Peace Prize.

The turbulent eighties

January 1980: 10. Indira Gandhi's Congress (I) wins two-thirds majority in the new Lok Sabha. 14. Mrs. Gandhi's new Ministry at centre sworn in. 18. Assam agitation turns violent; Army called out. 21. Assembly elections in Kerala; I.D.F. wins absolute majority. 22. Bal Ram Jakhar elected Lok Sabha Speaker. 24. E. K. Nayanar forms Government in Kerala. 30. Mother Teresa awarded Bharat Ratna.

February 17. President's rule in Tamil Nadu, Maharashtra, U.P., Bihar, Orissa, M.P., Rajasthan, Punjab and Gujarat. 23. Prakash Padukone becomes the first Indian to win All-England Badminton Championship.

April 2. Raj Narain expelled from Lok Dal forms Janata (S) Party. 6. JP splits again; members with RSS links form BJP with A. B. Vajpayee as President. 15. Six more private sector banks nationalized. 24. Baba Gurbachan Singh, Nirankari chief, assassinated; son named new chief.

June 1. AIADMK wins Tamil Nadu Assembly election; Congress (I) wins in U.P., M.P., Gujarat, Rajasthan, Punjab, Maharashtra and Orissa. 9. M. G. Ramachandran's second AIADMK Ministry takes office. 13. Sanjay Gandhi appointed Congress General Secretary. 23. Sanjay dies in a

plane crash in New Delhi. 24. Former President V. V. Giri passes away.

July 12. Congress (I) gets absolute majority in Rajya Sabha. 18. India's SLV-3 Rocket puts Rohini satellite in orbit. 29. India regains Olympic hockey title.

September 4. Second Commonwealth Regional Heads of Government Conference in New Delhi. 14. Centre nationalizes Maruti company.

December 8. Soviet President Leonid Brezhnev visits New Delhi.

1981: January 17. Central Government offers full statehood to Mizoram. 26. Vayudoot, the third airline inaugurated.

February 7. Sixty-one die in circus fire in Bangalore.

June 24. APPLE, India's first geostationary experimental telecommunications satellite launched into orbit from Kourou, French Guiana. Air Marshal Dilbagh Singh is appointed Chief of Air Staff. 30. President's rule imposed in Assam.

August 5. Jagjivan Ram heads breakaway Congress (U) and calls new party Congress (J). 25. Mr. Sharad Pawar, Maharashtra leader, elected President of Congress.

September 29. Five Khalistan activists hijack Indian Airlines Boeing 737 to Pakistan with 117 pa

passengers; 66 freed on arrival in Lahore. 30. Pakistan Commandos overpower the five hijackers.

October 1. Activists of the Dal Khalsa who masterminded the hijacking of Indian Airlines plane arrested. 20. Twenty-one-month-old Left United Front Ministry led by Mr. E. K. Nayanar, resigns in Kerala. 21. Kerala under central rule.

December 28. Madras-Penang undersea cable commissioned. New Government led by the Congress(I) leader Karunakaran, installed in Kerala.

1982: January 14. 21-member Indian team lands on Antarctica. 19. Bombay High Court finds allegations against the CM A. R. Antulay justified. Antulay resigns. Mizo National Front and allied organizations declared illegal.

March 17. President's rule in Kerala. 19. President's rule in Assam; Acharya J. B. Kripalani (94) dies. 21. N. T. Rama Rao forms Telugu Desam party in Andhra Pradesh.

April 10. INSAT-1A placed in orbit; Snag detected.

May 10. Karnataka Kranti Ranga led by Devaraj Urs comes into being. 19. Elections for Assemblies held in West Bengal, Haryana, Himachal Pradesh and Kerala. 29. Naval Academy at Ezhimala, Kerala, approved by Union Cabinet.

June 22. 19 persons killed and 25 injured when an Air India Boeing 707 from Singapore via Madras crashes at Bombay.

July 1. MGR inaugurates Tamil Nadu's noon meal programme for poor children. 20. Miran Chhanna (90), disciple of Mahatma Gandhi, dies. 25. Jai Singh sworn in President.

September 7. J & K CM Sheikh Abdullah (77) dies.

October 8. Indian Air Force celebrates 50 years. 7. Gandhiji's private secretary Pyare Lal dies.

November 4. Gen. Zia-ul-Haq of Pakistan visits New Delhi. Agreement to set up a Joint Commission. 15. Acharya Vinobha Bhave (88) dies.

1983: January 25. Telugu Desam swept to power in Andhra Pradesh; Bharat Ratna awarded to the late Acharya Vinoba Bhave.

April 12. Richard Attenborough's Gandhi wins Oscars. 17. SLV-3 launched. Rohini put in orbit. July 2. First 235 MW unit of nuclear power station at Kalpakkam goes critical.

September 4. INSAT-1B runs into snag, its solar array fails to deploy fully. 23. Supreme Court upholds execution of criminals through hanging by rope.

October 19. The Union Government takes over management of 13 textile undertakings in Bombay; marathon strike in cotton textile industry ends. 22. The Union Government reduces the upper age limit for the Civil Service examinations from 28 to 26.

1984: March 2. Mother Teresa University inaugurated by Mother herself at Kodaikanal, T. Nadu.

April 5. Squadron leader Rakesh Sharma be-

comes India's first spaceman, when he is launched aboard Soyuz T-11 of Soviet Union. 13. Kerala Government drops Silent Valley Project and declares the entire area a national park.

May 23. Ramesh Chandra Chopra, editor-in-chief of the *Hind Samachar* group of newspapers shot dead by extremists in Punjab; Miss Bachendri Pal becomes the first Indian woman to conquer Mount Everest.

June 2. Army takes control in Punjab. The State declared a restricted area under the Foreigners Act. 5. Operation Blue Star: Jarnail Singh Bhindranwale and over 325 killed. 7. Violence in Delhi, Srinagar.

July 5. IA Airbus hijacked, lands in Lahore. 10. White Paper on Punjab released by Union Government. 21. Terrorists breach Bhakra canal in Punjab.

August 2. Bomb explosion at Meenambakkam Airport kills 32. 22. R. Venkataraman elected eighth Vice-President of India. 26. Indian Airlines Boeing 737 with 68 passengers and a crew of 6 hijacked to Lahore; The twelve Sikh hijackers surrender to authorities in the UAE and release all 68 passengers.

September 25. Army withdraws from the Golden Temple; Repair of the Akal Takht complete.

October 31. Indira Gandhi assassinated by two of her own security guards at her residence in Delhi. Rajiv Gandhi sworn in PM.

November 2. Violence following Mrs. Gandhi's assassination takes heavy toll. 12. Rajiv Gandhi elected Congress(I) President. 25. Y. B. Chavan (71), former Deputy PM dies.

December 3. 2,500 persons killed and 2,000 badly affected when they inhaled poisonous gas escaping from an insecticide plant in Bhopal. 10. Justice Thakkar Commission appointed to enquire into the assassination of Indira Gandhi. 14. First MiG 27 aircraft assembled by HAL takes off. 28. Congress(I) sweeps Lok Sabha elections.

1985: January 1. Doordarshan starts Malayalam telecast from Trivandrum. 16. Balram Jakhar elected Speaker of the Lok Sabha. 18. Spy ring cracked. Top Government officials, businessmen held. 19. Dr. P. C. Alexander, principal secretary to the PM quits following the arrest of three aides in an espionage case.

February 1. Mohammad Azharuddin becomes the first man in cricket history to hit a century in each of his first three tests. 12. A fire on M.V. Chidambaram, an Indian liner sailing from Singapore to Madras, kills 34. 14. Dr. Nagendra Singh elected world court chief.

March 1. Rajendra Sethia, the biggest personal bankrupt ever, arrested in New Delhi. 10. Ravi Shastri is declared champion of champions and Sunil Gavaskar steps down from the captaincy.

May 7. Adoor Gopalakrishnan adjudged Best Director (Mukhamukham) in national film awards. 10. P. N. Bhagwati appointed Chief Justice of the

second aircraft carrier named INS Viraat. 29. Former PM Charan Singh (85) dies. 30. Goa becomes the 25th state of India, Daman and Diu to remain as union territory.

June 4. A Swedish Government enquiry finds that Bofors paid commission to middlemen for concluding arms purchase agreement with India. 14. PM Rajiv Gandhi rules out termination of Rs. 1700 crore Bofors gun deal.

July 15. Congress President Rajiv Gandhi expels V. C. Shukla, Arif Mohammed Khan and Arun Nehru from Congress for anti-party activities. 17. V. P. Singh, announces resignation from Congress; R. Venkataraman elected President of India. 18. Amitab Bachhan resigns his Lok Sabha membership. Arun Singh, union minister of state for defence, resigns from the cabinet. 19. Congress President Rajiv Gandhi expels V.P. Singh from Congress and orders probe into Ajitab Bachhan's property abroad.

August 2. Geet Sethi retains the World Amateur Billiards title; Vishwanathan Anand becomes the first Asian to win the World Junior Chess championship. 14. Bharat Ratna awarded to Frontier Gandhi Khan Abdul Ghafter Khan. 21. S. D. Sharma elected Vice-president of India. 27. B. Shankaranand appointed Chairman of the Parliamentary Committee to enquire into the Bofors gun deal.

September 4. In Rajasthan, Roop Kanwar, 18 year old girl, commits sati by burning herself in her husband's funeral pyre.

December 6. MiG-29, re-christened Baaz, inducted into the Indian Air Force. 11. Rajiv Government defeats the first ever no-confidence motion. 17. Bhopal court orders the Union Carbide to pay Rs. 350 crore as interim relief to 1984 gas victims. 24. M. G. Ramachandran 70, Tamil Nadu CM, dies.

1988: January 7. Mrs. Janaki Ramachandran sworn in as CM of Tamil Nadu. 20. Frontier Gandhi, Khan Abdul Ghaffar Khan, dies; Shiv Charan Mathur sworn in as CM of Rajasthan. 25. Bharat Ratna, conferred posthumously on M. G. Rama-chandran.

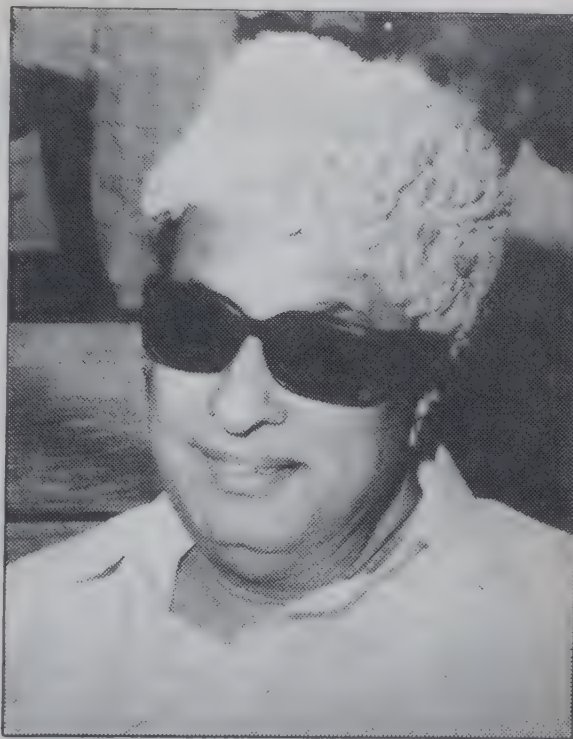
March 17. India's first remote-sensing satellite, IRS-IA, launched.

April 31. Raj Kapoor gets Dada Saheb Phalke award for 1988.

June 18. V. P. Singh defeats Congress rival, Sunil Shastri in Allahabad Lok Sabha election.

July 8. More than 100 people killed and several injured as Bangalore—Trivandrum Island Express jumps rails and falls into Ashtamudi lake at Perumon in Quilon district of Kerala. 22. INSAT-1C launched. 28. National badminton champion, Syed Modi, shot dead.

August 2. In Indira Gandhi murder case, Supreme Court confirms death sentence on Satwant Singh and Kehar Singh. 7. N. T. Rama



Actor-Chief Minister: MGR

Rao elected Chairman and V.P. Singh, Convenor of the NF. 10. Ramakrishna Hegde resigns as CM of Karnataka on moral grounds in connection with phone tapping issue. 12. S. R. Bommai elected Karnataka CM. 22. GNLF signs accord with Centre and West Bengal on formation of an elective Hill Council for Darjeeling.

September 5. A day without newspapers in the country as the result of a protest by the entire newspaper industry, against Defamation Bill. 7. President's rule in Mizoram. 22. PM announces Government's decision to drop Defamation Bill.

October 11. JD, the new national centrist opposition party, launched; V. P. Singh elected President.

November 4. Lok Dal splits, H.N. Bahuguna expelled and Devi Lal elected to replace him. 16. India gives full recognition to the state of Palestine. 18. Soviet leader, Mikhail Gorbachev, arrives in Delhi on a 3-day visit. 22. Baba Amte wins U.N. Human Rights Award.

December 11. Dr. Nagendra Singh, 74, President of the International Court of Justice, dies in the Hague. 15. Landslide victory for GNLF in Darjeeling Gorkha Hill Council elections. 18. Rajiv Gandhi visits China the first visit to China in 34 years by an Indian PM. 20. The Constitution (62nd Amendment) Bill for reducing the voting age from 21 to 18 years receives Parliamentary approval.

Opposition gains power

January 1989: 1. India and Pakistan sign three agreements; The 4th annual SAARC summit concludes in Islamabad. 6. Satwant Singh (24) and Kehar Singh (54), executed for the murder of Indira Gandhi. 14. Poorna Kumbh, India's largest religious gathering, once in 12 years, begins at Allahabad. 16. Prem Nazir (59), hero of more than 620 Malayalam films, dies. 22. DMK swept to power in Tamil Nadu Assembly election. 23. Madhya Pradesh CM Arjun Singh resigns on Churhat lottery case grounds. 25. In Nagaland, Congress-I Ministry headed by S. C. Jamir assumes office; Motilal Vora sworn in as CM of Madhya Pradesh. 27. M. Karunanidhi sworn in as DMK CM in Tamil Nadu.

February 2. France's highest civilian award, Legion d'Honneur conferred upon Satyajit Ray by President Mitterrand at Calcutta. 8. Mrs. Gro Harlem Brundtland, PM of Norway, awarded 1988 Indira Gandhi Prize for Peace, Disarmament and Development. 9. Actor-Director Sanjay Khan critically injured in a fire accident. 13. Renowned writer Aubrey Menen (76), dies in Kerala. 14. Supreme Court orders Union Carbide to pay \$470 million (about Rs. 715 crore), in full and final settlement of all claims out of the Bhopal Gas tragedy. 28. Finance Minister S. B. Chavan presents a Rs. 7337 crore deficit budget for 1989-90.

March 1. Vasant Rao Patil, former CM of Maharashtra and Governor of Rajasthan, dies. 5. Bihar CM Bhagwat Jha Azad resigns. 9. Yasser Arafat, PLO Chairman, arrives on a two-day state visit to India. 11. In Bihar, a 13-member ministry headed by Satyendra Narain Sinha, MP, sworn in. 17. H. N. Bahuguna, president of Lok Dal (B) and former Union Minister, dies. 26. Eighth Antarctica Expedition returns after erecting India's second permanent manned station, Maitri.

April 1. Socialist leader S. M. Joshi dies; Bengal regains Santosh Trophy beating Kerala. 13. Malayalam film Piravi directed by Shaji N. Karun adjudged best feature film of 1988. 14. Cine actor Ashok Kumar gets Dada Saheb Phalke Award. 20. Chief Justice of India, R. S. Pathak, elected to the World Court; Launching of IRBM Agni fails. President's rule imposed in Karnataka.

May 22. IRBM Agni launched successfully from Chandipur, Orissa.

June 4. Eminent broadcaster Melville de Mellow dies. 18. India and Pakistan decide to end the five-year-old confrontation in Siachen Glacier area by redeploying their forces.

July 1. New Governors appointed in five

states Gen. K. V. Krishna Rao for J&K. 4. Union Deputy Ministers promoted to the rank of Ministers of State; Capt. W. A. Sangma appointed Governor of Mizoram and A. A. Rahim, Governor of Meghalaya. 15. Rajiv Gandhi holds talks with Soviet President Mikhail Gorbachev in Moscow; Rajiv Gandhi arrives in Pakistan for the first official visit by an Indian PM in 30 years. 24. A majority of opposition members in Lok Sabha resign on the issue of C & AG report on Bofors gun deal. 28. Mufti Mohammad Sayeed disqualified from Rajya Sabha, in the first case of such disqualification from the House under anti-defection law.

August 1. Reliance executive Kirti Vrajla Ambani held in connection with a plot to kill Bombay Dyeing Chairman Nusli Wadia. 6. Six top Cricket stars banned for one year from all cricket activities on the issue of American tour. 10. Lok Sabha passes Panchayati Raj and Nagarpalika Bills.

September 1. Yasser Arafat chosen for the 1988 Jawaharlal Nehru Award for International Understanding. 20. IPKF suspends its operations against LTTE and LTTE in turn ceases operations against the Indian armed forces. 27. The second test launching of India's surface-to-surface missile, Prithvi, from Sri Harikota successful; noted singer and music director Hemanta Kumar Mukherjee dies. 30. INS Shalki India's first indigenously built submarine launched in Bombay.

October 5. M. Fatima Beevi, former High Court judge from Kerala, named the first woman judge of the Supreme Court. 13. Panchayati Raj and Nagarpalika Bills defeated in Rajya Sabha. 21. Sukhdev Singh alias Sukha and Harmandir Singh alias Jinda sentenced to death for the murder of former Army Chief Gen. A. K. Vaidya.

November 10. Foundation stone laid for the Ram Janambhoomi temple at Ayodhya. 16. 6 out of 71 trapped miners at Raniganj, rescued. 22. Poll for 9th Lok Sabha and Assembly elections in 5 states opens. 26. Anti-Congress wave in North; South India favours Congress. 30. Congress (I) emerges largest party in Lok Sabha by winning 193 seats, Congress (I) rule in Karnataka, Veerendra Patil made CM.

December 1. NF decides to form government with the outside support of BJP and the left parties; Dr. Chenna Reddi (Congress-I) becomes CM of Andhra Pradesh; A 13-member Sikki Sangram Parishad Ministry headed by N. Bahadur Bhandari assumes office in Sikkim.

VP Singh, JD leader, sworn in as India's seventh PM; Om Prakash Chauthala is the new CM of Haryana. 3. Mulayam Singh Yadav named U.P. CM. 4. Hardeo Joshi replaces Shiv Charan Mathur as CM of Rajasthan. 7. Hemananda Biswal sworn in as Orissa Chief Minister. 8. Dr. Rubia Sayeed, daughter of Union Home Minister kidnapped by Kashmiri militants, demanding release of 5 terrorists. 9. Shyama Charan Shukla sworn in as C.M. in M.P. 12. Air Chief Marshal (retd.) Arjan Singh named Delhi Lt. Governor. 13. Dr. Rubiya Sayeed released in Srinagar. 18. Prof. M. G. K. Menon sworn in Minister of State for Science and

Technology; Rabi Ray from Orissa elected Speaker of the Lok Sabha; Justice Sabyasachi Mukherjee sworn in as Chief Justice of India. 21. V. P. Singh wins vote of confidence in the Lok Sabha. 26. India debars Bofors from future contracts until they come out clean; The Constitution 62nd Amendment Bill seeking to extend reservation for scheduled castes and scheduled tribes in Lok Sabha and state assemblies for another ten years, approved in Parliament; Cartoonist K. Shankar Pillai dies in New Delhi. 29. Prasar Bharati Bill, and Lok Pal Bill introduced in Lok Sabha.

Change of guard in Delhi

January 1990: 2. Election panel made one-member body again Election Commissioners S. S. Dhanoa and V. S. Seigell removed; Capt. Nivedita Bhasin, 26, becomes the youngest woman pilot in world civil aviation history to command a jet aircraft. 7. President returns the Indian Post Office (Amendment) Bills of 1986 to Parliament, at the instance of the Government. 12. Upper age limit for Civil Services Examination raised from 26 to 28 years; Vimal Kumar and Madhumita Bisht retain National badminton titles. 14. India and Maldives scrap visas; J&K Governor quits. 16. All Governors asked to resign; Dr. R.R. Diwakar, Gandhian and former Union Minister, dies. 18. J&K CM Farooq Abdullah quits. 19. Mr. Jagmohan, new Governor, takes over administration in J&K; Rajneesh, the modern mystic and controversial cult figure, dies. 20. Dr. Raja Ramanna sworn in Minister of State for Defence. 22. FIR registered in Bofors kick-backs case.

February 1. Governors named for 14 states. 6. Ashok Shandilya of Railways wins National billiards crown. 10. WB's CPI(M) secretary Saroj Mukherjee, dies. 12. Assembly election in Manipur. 14. Over 90 persons killed in an Airbus crash in Bangalore. J & K Assembly dissolved. 23. 5-member Ministry headed by R. K. Ranbir Singh in Manipur. 27. Polls in eight States and Pondicherry.

March 1. In Assembly elections, JD secures four-fifth majority in Orissa, Biju Patnaik new CM; BJP swept to power in Madhya Pradesh and Himachal Pradesh, shares power with JD in Gujarat and Rajasthan. 2. DMK Front to form government in Pondicherry and Congress (I) in Maharashtra. 3. JD-BJP coalition government in Gujarat, Chimanbhai Patel CM; Sharad Pawar in Maharashtra, Bhairon Singh Shekhawat of BJP to head the BJP-JD coalition government in

Rajasthan. 4. Sunderlal Patwa (BJP) and D. Ramachandran (DMK) named CM of M.P. and Pondicherry respectively; V. P. Singh resigns as party president, but asked to continue; Shanta Kumar, (BJP) CM of H.P.; Congress (I) gains absolute majority in Arunachal Pradesh, Gegong Apang CM. 5. Government announces an interim relief of Rs. 360 crore to 5 lakh victims of the 1984 Bhopal gas tragedy. 6. India wins Indira Gandhi Gold Cup hockey tournament. 9. Lalu Prasad Yadav to form JD Ministry in Bihar; Former Punjab CM Darbara Singh dies. 18. Deputy PM Devi Lal withdraws his resignation. 19. Union Finance Minister Madhu Dandavate submits Rs. 7,206 crore deficit budget with a mixed bag of new levies and concessions. 24. Last of IPKF leaves Sri Lanka. 25. Lakshadweep Council elections. 26. In Meghalaya, Sangma Ministry quits, B. B. Lyngdon is new CM; Goa CM Pratap Singh Rane resigns; Maniben Patel, daughter of Sardar Vallabhai Patel, dies. 27. A ten-member Progressive Democratic Front Ministry led by Churchill Alemao sworn in Goa. 28. Bengal wins Renji Trophy. 29. Malayalam film actor, Adoor Bhasi dies. 30. Constitution (64th) Amendment Bill to extend President's rule in Punjab, collapses in Lok Sabha. 31. Bharat Ratna posthumously awarded to Dr. B. R. Ambedkar.

April 4. Lata Mangeshkar wins 1989 Dada Saheb Phalke award; Hindi film *Bagh Bahadur*, best feature film of 1989. 5. Lok Sabha passes Punjab Bill; Indian, Mrs. Sheela Flather becomes the first Asian to be nominated to the House of Lords. 6. B. T. Ranadive, Marxist leader and founder President of WTU, dies. 14. L. P. Poarbosa sworn in as CM of Goa; Veena Vidwan S. Balachander dies. 21. 18 more Ministers added to the National Front Ministry. The first indigenously-built missile boat, *Vibhuti*, launched.

May 4. Supreme Court directs Central Gov

ernment to set up a Tribunal to resolve Cauvery water dispute between Tamil Nadu and Karnataka. 7. Government disallows Shilanyas at Ayodhya; Government of India bans strikes in any service in any oil field or refinery under the Essential Services Maintenance Act. 8. A 255 km p h cyclone lashes Andhra Pradesh coast causing heavy losses to life and property. Paul Mantosh and Joss Fernandes take oath as nominated Anglo-Indian members in Lok Sabha. 19. S. R. Bommai unanimously elected President of JD. 21. PM V. P. Singh clears the Rs. 13,000 crore Sardar Sarovar (Narmada) Project. 23. Banarasi Das Gupta elected CM of Haryana following Om Prakash Chautala's resignation. 24. Surjit Singh Barnala sworn in as Governor of Punjab. 25. J&K Governor Jag Mohan resigns. Mr. Girish Chandra Saxena appointed new Governor. 27. Former CM Om Prakash Chautala wins Mehem bye-election.

June 2. Union Government set up a tribunal to settle the Cauvery water issue between Tamil Nadu & Karnataka. 6. GOI decides to extend validity of passports to 10 years. 8. Nepal PM Krishna Prasad Bhattarai and Indian PM V. P. Singh decide to restore normal ties. 12. CPI(M) accuses Communist Party of Soviet Union of departing from the basic ideology of Marxism-Leninism in the name of correcting past distortions. INSAT 1D launched from the Kennedy Space Centre in Florida. 14. Mr. Veerendra Verma sworn in as the new Governor of Punjab and Administrator of Chandigarh. 15. Punjab Government returns to SGPC gold and other valuables seized from Golden Temple during the 1984 Blue Star operation. 16. Bombay gets 42 cm rainfall, the century's highest. The previous high of 41 cm was recorded on June 18, 1986; GOI announces higher procurement/minimum support prices for all major kharif crops. 19. NDC approves approach paper to the Eighth Plan; Thirteen Sri Lankan Tamils, including EPRLF Secretary General Padmanabha shot dead in Madras reportedly by LTTE men. 24. Defence scientists successfully test fire country's first third generation anti-tank missile NAG. President Mr. R. Venkataraman issues notification formally constituting an Inter-State Council.

July 1. General Sunith Francies Rodrigues takes over as Chief of the Army Staff. 5. J&K Governor G. C. Saxena promulgates J&K Disturbed Areas Act, 1990, declaring several districts as disturbed area. 13. Three Union Ministers Mr. Arun Nehru, Mr. Arif Mohammed Khan, and Mr. Satpal Malik submit resignation in protest against O.P. Chautala's taking over as CM of Haryana. 16. O.P. Chautala resigns following directive from JD. 18. Following the end of six months Governor's rule, President's rule imposed in J&K. 19. Planning Commission decides

to make changes in the Gadgil formula for central assistance to States in consultation with states. 20. GOI notifies restrictions on liberal import policy announced earlier. The restrictions will cut the import bill by about Rs. 1000 crore. Tamil Nadu Bandh organised by Tamil Nadu Government to protest against the killing of Tamils in Sri Lanka passes off peacefully.

August 1. Dy. PM Devi Lal dropped from Union Cabinet following wild charges he made against colleagues in an interview with the *Illustrated Weekly*. 7. GOI accepts Mandal Commission recommendations and decides to reserve 27 per cent jobs for Backward Classes. Union Cabinet approves setting up of Indian Broadcasting (Programme) Service. 8. Violent protests rock Bihar against Mandal Commission Report implementation. 15. India successfully test fires advanced medium range surface to air Akash missile. GOI declares Prophet Mohammed's birthday a national holiday. 21. Government moves in the Lok Sabha Prasar Bharati Bill. 25. GOI announces formation of National Security Council, headed by the PM. 27. The Cabinet Committee on political affairs decides to put a proposal before Parliament providing five to ten per cent of Central Government jobs reserved for economically weaker sections. 30. Parliament unanimously passes Prasar Bharati Bill.

September 4. Congress (I) opposes the Prasar Bharati Bill in the Rajya Sabha saying the party wants the bill to be sent to a select committee. An all party meeting refuses to endorse the decision to implement Mandal Commission Report according to which 27% jobs are reserved for backward communities. 5. Rajya Sabha approves Prasar Bharati Bill, rejecting by voice vote three motions moved by the Congress (I) to refer the Bill to a joint select committee. 8. Mother Teresa re-elected head of the Missionaries of Charity. 12. Konkan Railway project formally launched with the opening of a project office in Ratnagiri in Maharashtra State. 16. Air India establishes a world record by evacuating more than 1.11 lakh persons in 8 weeks from Kuwait/Iraq. 19. Planning Commission announces 8th Five Year Plan proposals with a total outlay of Rs. 610,000 crore. Delhi University student Rajeev Goswami attempts to self immolate in protest against implementation of Mandal Commission Report. 21. Supreme Court refuses to stay implementation of Mandal Commission Report. 23. World Bank clears Rs. 1,200 crore aid for Sarovar Dam rejecting objections raised by environmental groups. 25. Supreme Court Chief Justice Sabyasachi Mukharji, 63, dies of a heart attack in London. Former Chief Minister of West Bengal, P. C. Sen, 94, dies in Calcutta. One of the

tudents, S. S. Chauhan, who suffered severe burns while trying to immolate himself in protest against implementation of Mandal Commission Report, dies. L. K. Advani, BJP President starts his Gomnath Temple Ayodhya rathayatra. 29. Central Government adopt a three pronged strategy to create an additional 30 lakh jobs outside the Government sector over the next five years. 30. Former Dy PM Devilal submits letter of resignation from Parliament.

October 1. Supreme Court stays implementation of Mandal Commission recommendations. In Justice Ranganath Mishra appointed Chief Justice of Supreme Court. Constitution 75th Amendment bill to extend President's rule in Punjab for another six months fails through the first stage in Lok Sabha for want of a simple majority. 5. Parliament passes the constitution 66th Amendment Bill to extend President's rule in Punjab for another six months from November 10, 1990. 6. Justice Ranganath Mishra sworn in as Chief Justice of Supreme Court. 8. Veteran freedom fighter and Congress leader Ram Lal Bhatnagar (86), dies. 10. Following political uncertainties in the wake of Veerendra Patil's decision to stay on in defiance of Congress Party's decision, President's rule is imposed in Karnataka. 12. Government of India announces a 15% cut in oil consumption, exempting LPG and kerosene. 15. Dr. Nelson Mandela, the South African black nationalist leader arrives in India on a five day visit. 16. Dr. Nelson Mandela, conferred with Bharat Ratna, the highest civilian honour. 17. S. Bangarappa sworn in as CM of Karnataka, following revocation of President's rule. 19. Government of India under an ordinance acquires the disputed land and the adjoining land at Ayodhya; The Government puts forward a three—point formula: (i) to acquire the land (ii) other land may be given for building temple except the disputed one (iii) the issue may be referred to Supreme Court for speedy solution. 20. Andhra Pradesh Government announces a five-day week for all offices and educational institutions from November 1, 1990. 21. Doordarshan starts afternoon news bulletins at 2 p.m. (Hindi) and 3 p.m. (English) of 15 minutes duration on week days and 5 minutes on Sundays. 23. Following the arrest of BJP President L. K. Advani who was leading a rathayatra to Ayodhya, at Samastipur in Bihar, BJP withdraws support to National Front Government. The Ordinance issued taking over the land in Ayodhya is withdrawn. 24. BJP-sponsored Bharat Bandh in protest against L. K. Advani's arrest evokes mixed response. 25. JD and BJP withdraw support to Rajasthan and Gujarat Ministries respectively. JD ministers in Rajasthan and BJP ministers in Gujarat resign. 26. V. Shantaram (90), veteran film maker dies

in Bombay. 30. Several people died and many injured as security forces open fire at the crowd marching towards Ram Janma Bhumi/Babri Masjid to perform karseva.

November 1. In Gujarat, JD Government headed by Chimanbhai Patel defeats no-confidence motion with Congress(I) support. 2. Many die in firing in Ayodhya as Karsevaks storm the Ram Janma Bhumi/Babri Masjid structure. Curfew in many areas in north and west India to prevent communal violence. Several people die in violence. 5. JD splits the breakaway group claims support of 58 MPs and elect Mr. Chandrasekhar as leader. 7. National Front Government headed by V. P. Singh loses confidence motion in the Lok Sabha (151-356) V. P. Singh tenders resignation. 8. Congress(I) extends support to Chandrasekhar to form Government, even as BJP and left parties decline the request of President R. Venkataraman to form Government. Rajasthan BJP CM Bhairon Singh Shekhawat wins confidence motion with the help of Janata Dal rebels (116-80). 9. JD expels Gujarat C.M. Chimanbhai Patel and UP C.M. Mulayam Singh Yadav from Legislative wings and primary membership of the party. 10. S. Chandrasekhar sworn in as PM, and Devilal as Dy. PM. 12. Uttar Pradesh Government raises the reservation for Backward Classes in direct recruitment to State Services from 15 to 27 per cent. 16. Chandrasekhar Government wins confidence motion 280 for, 214 against and 11 abstained (17 members were absent). Allahabad High Court stays UP Government's decision to increase reservation quota for Backward Classes. 20. In U.P. Mulayam Singh Yadav (JD(S)) ministry wins a confidence motion (224-146) with the help of Congress(I). Union Government asks Supreme Court to repeal the \$470 million Bhopal Gas settlement order. 22. Bihar CM Lalu Prasad Yadav wins confidence motion (202-108). 27. The tenth Indian Scientific Expedition team. 28. President's rule imposed in Assam. Assembly kept in suspended animation. United Liberation Front of Assam and National Socialist Council of Nagaland banned. Union Cabinet approve re-induction of Airbus A-320 in the domestic sector. 30. Admiral Laxmi Narayan Ramdas takes over as Chief of Naval Staff.

December 1. Vijaya Laxmi Pandit (90) passes away. 4. Maharashtra Gomantak Party withdraws support to Goa ministry led by Dr. Luis Proto Barbosa. 5. With the induction of 60 ministers, the Bihar Cabinet becomes the largest ever cabinet in India, with a total of 71 ministers. 6. VHP—sponsored Karseva in Ayodhya passes off peacefully. 10. Goa CMDr. L. P. Barbosa resigns following withdrawal of support by M.G.P. The communal disturbances in Hyderabad claim more than 100 lives, as violence

spreads to Aligarh and Kanpur. 11. T. N. Seshan appointed CEC, and Mr. Mohan Dharia Deputy Chairman of the Planning Commission. 14. President's Rule imposed on Goa. Caretaker CM Dr. Barbosa disqualified from the membership of Assembly for defection from Congress (I) nine months ago. 16. Andhra Pradesh CM Dr. M. Channa Reddy resigns. 17. N. Janardhan Reddy sworn in as CM of Andhra. 20. India and Pakistan agree not to attack each other's nuclear installations. Supreme Court stays Delhi High Court judge Mr. Justice Chawla's orders on the Bofors issue. 21. Former Union Finance Secretary S. Venkatraman appointed Governor of RBI. B.

Rachaiiah and Dr. Sarup Singh sworn in as Governor of Kerala and Gujarat respectively. 23. A. India BMAC and VHP hand over historical and archaeological documents to support their claim to Home Ministry officials. 27. DMK led Pondicherry Ministry headed by D. Ramachandran resigns following loss of majority. Centre Govt. introduces fresh direct tax proposals to raise additional Rs. 810 crore by raising income tax and fixing limits for deduction of depreciation. 28. Following war threat as the January 1 deadline set by UN for Iraq to withdraw from Kuwait approaches GOI advise Indians in Gulf to send back their families to India.

Rajiv Gandhi assassinated

January 1991: 1. Karnataka governor Bhanu Pratap Singh resigns. Goa governor Khurshid Alam Khan appointed in his place. 2. Thiruvananthapuram airport declared India's fifth International Airport; P. Shivshankar resigns as Opposition Leader in Rajya Sabha. 11. Five JD Ministers at the Centre disqualified by Speaker Rabi Ray on the basis of anti-defection law. Five disqualified Ministers who tender resignation are asked to continue in office by PM. Morarji Desai awarded 'Bharat Ratna'; Ravi Naik of Maharashtra (25); Gomanthak party sworn in as the CM of Goa. 30. Union Government dismisses Karunanidhi government. President's rule imposed in Tamil Nadu.

February 9. India stages the last decadal census of the century. 13. Muslim League leaves the UDF in Kerala; Surjit Singh Barnala resigns as Governor of Tamil Nadu. 21. Opposition boycotts the President's address as a protest against the dismissal of Tamil Nadu government; the President accepts the resignation of 5 cabinet members who were disqualified by the Speaker as per the anti-defection law; film actress Nutan; 56, dies.

March 4. Finance Minister Yashwant Sinha presents midterm budget, cut in food and fertiliser subsidy amounting to Rs. 934 crore proposed. 5. Congress threatens to withdraw support to the minority government of Chandrasekhar on the issue of police surveillance in Rajiv Gandhi's residence. 6. Chandrasekhar resigns as PM. 12. Lok Sabha Speaker Rabi Ray admits an Opposition-sponsored motion for removal of the Supreme Court Judge, Mr. V. Ramaswamy, for alleged misappropriation of public funds, and sets up a three-Judge committee to investigate. 13. President R. Venkataraman dissolves Lok Sabha. 18. West

Bengal opts for assembly poll. 20. Simultaneous polls in Tamil Nadu. 22. Chautala sworn in as Haryana CM; President withholds assent to the pension bill of Members of Parliament. 23. 1991 census report released; India has 800 million people; 28 I.A.F. men die in air crash Bangalore. 26. Chautala loses majority after disqualification of three Janata Dal (S) members. Janata Party merges with Janata Dal (S). 27. Chautala recommends Assembly dissolution. 28. Chautala asked by Governor to prove majority on the floor of the house.

April 2. Haryana Governor recommends President's rule. Asom Gana Parishad splits. UP Assembly dissolved to pave way for Assembly polls. 4. Gujarat CM Chimanbhai Patel (Gujarat)-to contest the elections with political understanding with Congress (I). 5. Kerala Assembly dissolved paving way for elections. President's rule imposed in Haryana. 8. Asam CM Prafulla Kumar Mahanta steps down as PM. 12. Lok Sabha elections announced. May 20, 23, 26; Punjab Assam, J&K polls deferred. 14. NF promises 5-10% jobs to economically backward sections among the upper castes. 18. Kerala declared the first fully literate state in the country. 22. Arun Nehru and Arif Mohammad Khan expelled from Janata Dal; IMF and World Bank decide to grant \$ 1 billion loan to India. 23. Major parties agree to have poll in Punjab. 30. BJP election manifesto promises Presidential form of government.

May 11. Naxalities in Andhra abduct P. Sudhakar, son of the former Union Minister S. Shankar. 13. P. Sudhir Kumar released in exchange for a few Naxals in jail. 19. About 1 crore voters go to the polls in the first phase of election in 204 constituencies of the 10th Lok Sabha. 21. Former Prime Minister Rajiv Gar

killed in a bomb blast at Sri Perumbudur, 40 km from Madras. 22. Elections scheduled to be held on 23, 26 deferred to 12, 15 of June; Veteran Communist leader Shripat Amrit Dange is dead; Sonia unanimously elected Congress President by the Working Committee. 23. Sonia Gandhi declines the offer. 24. Rajiv Gandhi laid to rest. 27. Justice J.S. Verma of the Supreme Court appointed to probe into Rajiv murder case. 29. P.V.Narasimha Rao elected President of Congress (I). 30. Uma Shankar Dixit (90) dies.

June 2. Dinesh Goswami, former Union Law Minister, killed in a road accident in Assam. 9. Question paper leaked: Civil Services preliminary examination cancelled. 11. Over 106.6 million voters go to the second phase of national polls. 13. Doordarshan Director General Shiv Sharma shot at in Delhi by suspected Punjab terrorists. 14. The entire Punjab declared "disturbed area"; army deployed. 15. About 50% of the 180.3 million electorate cast their votes in the final phase of Lok Sabha elections. 17. Congress wins absolute majority in Haryana assembly; Rajiv Gandhi and Sardar Vallabhbhai Patel awarded Bharat Ratna; Congress and its allies secure absolute majority in Kerala and Tamilnadu assemblies. 18. Congress emerges as the largest party in Lok Sabha polls though short of an absolute majority. 21. A 54-member Narasimha Rao ministry sworn in. 22. DMK President M. Karunanidhi resigns from the Assembly. 23. Union cabinet formed. 24. The first-ever BJP ministry led by Kalyan Singh takes over in UP; Jayalalitha ministry sworn in in Tamil Nadu; K. Karunakaran ministry assumes power in Kerala; Pranab Mukherjee appointed Dy. Chairman of the Planning Commission; Two LIC officers burnt to death in Kashmir. 25. Sudhakar Rao Naik (Cong-I) sworn in as the Maharashtra CM. 26. Sharad Pawar joins Union Cabinet as Defence Minister. 28. K. Doraiswamy, a senior executive of the Indian Oil Corporation kidnapped by Kashmir ultras. 29. A 32-member Left Front cabinet led by Jyoti Basu sworn in in West Bengal. 30. A 36-member Congress ministry led by Hiteswar Saikia assumes office in Assam.

July 1. Rupee devalued by 8.5%. 3. Rupee devalued again from 10.58 — 10.96%. 8. L.K. Advani recognised as the leader of the Opposition of BJP in the 10th Lok Sabha; 25 tonnes of gold moved to London from India to raise \$ 200 million loan. 10. Shivraj Patil of Congress elected Speaker of 10th Lok Sabha. 15. The 25-days old Narasimha Rao government wins a vote of confidence in Lok Sabha 241 to 111; 112 abstained. 16. Railway budget hikes passenger fares 15—20% and freight up by 10%. 20. Shanmugam, suspect in Rajiv murder case, found dead; Sree Chithira Thirunal Balarama

Varma, 78, former Maharaja of Travancore dies. 22. New industrial policy for liberalisation of economies announced in Parliament. 24. Union budget imposes all-round price hike; Industrial licensing scrapped. 25. Sudhakar Rao Naik sworn in as Maharashtra CM. 26. Tamilnadu and Karnataka observe bandh over Cauvery water issue. 27. Army called out in Srinagar valley after an attack on security forces as 17 persons killed. 29. Union Labour Minister Vazhappadi K. Ramamurthy resigns on account of differences on Cauvery water issue.

August 3. About 280 kgs of gold ornaments valued at \$ 15 million which had been deposited in the Portuguese bank in Goa by Goans flown back to India. 6. Ramakrishna Hegde disqualified as M.L.A. 7. India successfully launches Prithvi-3 ground-to-air missile from Sriharikota. 8. India and Soviet Union extend their treaty of peace, friendship and co-operation for 20 more years. 10. Delhi airport police foils an attempt by a Saudi national to smuggle out a minor girl named Ameena. 12. Parliament passes the Terrorist and Disruptive Activities (prevention) amendment bill. 16. A Boeing 737 Indian Air-liner crashes in Manipur's Churachandpur district killing all 69; C. Achuta Menon, former CM of Kerala passes away. 18. 12 LTTE militants commit suicide. 20. Sivarasan & Subha, main suspects in Rajiv Gandhi case, commit suicide in Bangalore; Indian Oil Executive Director, K. Doraiswamy, released after 52 days in the custody of Kashmir ultras; India's Ambassador to Romania, J.F. Ribeiro, shot by Sikh extremists in Bucharest.

September 8. Hostage ONGC engineer T.S. Raju and mediator Bipul Mahanta, an Amesty International member, killed by ULFA in Assam. 9. Gold ornaments pledged by Goans to the Portuguese bank returned to owners. 19. Lok Sabha passes unanimously the Places of Worship (special provisions bill) for maintaining the status quo of religious places as on 1947. 11. Tax concessions announced. 13. The former Goa CM, Churchill Alemão who was wanted under COFEPOSA, surrenders to the police in Panaji. 14. Assam declared 'disturbed area', army launches 'Operation Rhino' against ULFA militants. 22. Film actress Durga Khote (86) dies. 26. Ordinance to amend MRTP Act and the Companies Act totally removes pre-entry restrictions on new industrial houses and expansion of the existing ones. 28. Shankar Guha Niyogi, an active trade union leader of Madhya Pradesh shot dead by unknown assailants.

October 5. Ramnath Goenka (87), founder Chairman of the Indian Express, passes away. 7. Telugu Desam decides not to oppose PM Narasimha Rao in Nandyal. 8. Meghalaya CM, B.B. Lyngdoh, loses a vote of confidence in the

assembly. 11. BJP government in U.P. acquires the disputed Ayodhya land; Meghalaya placed under President's rule. 12. Sonia Gandhi declines to contest from Amethi. 13. Captian Satish Sharma nominated to contest from Amethi; PM Rao leaves for Harare to attend the Commonwealth heads of government meeting; Film star Shatrughan Sinha decides to contest New Delhi Lok Sabha seat in BJP ticket against Rajesh Khanna, the Congress nominee. 20. Abolut 1000 people perish in an earthquake that rocked three northern districts of UP. 24. Ismat Chugai (80), Urdu writer and campaigner for justice for women, dies. 25. The special bench of Allahabad High Court UP government it from putting up any permanent structure on the acquired land. 28. Chruchill Alemao, of Goa set free by court. 29. JD leaders inculdiing V.P.Singh arrested on way to Ayodhya.31.Kar Sevaks hoist flags on Masjid in Ayodhya.

November 1. J.N. Dixit, to be next Foreign Secretary. 3. India's short range surface-to-air missile (SAM) named Trishul successfully tested. 8. K.P.S. Gill reappointed DGP in Punjab. 11. Supreme Court declares the anti-defection law as constitutional but holds that decisions of Presiding Officers under the law could be subjected to judicial review. 13. Supreme Court orders establishment of an all-India judicial service. 15. Import curbs on capital goods relaxed; Insurance official Dr. S.L. Khosa freed in Kashmir in exchange for a militant. 16. Sixty percent of the 23 million voters exercise their franchise in the by-elections to 15 Lok Sahba and 56 Assembly seats in 14 states. 17. PM Narasimha Rao wins by-election in Nandyal with a record margin of 5,80,297 votes; Sharad Pawar wins in Baramati.18.By-elections: Congress gets 8 Lok Sabha seats; suffers rout in UP assembly while BJP gets absolute majority. 19.Two national commissions on women set up. 21. Former Tamil Nadu Home Secretary R.

Nagarajan arrested for harbouring LTTE militants. 22. The Supreme Court declares the Karnataka ordinance on Cauvery water dispute unconstitutional. 23. India decides to upgrade its ties with the Soviet Republics. 24. Bihar's ruling JD makes a clean sweep of all the three Lok Sabha seats in the by-elections. 26. Romanian diplomat Liviu Radu released by Sikh militants after 48 days in captivity. 29.Industrial and bank strike called by the left-oriented trade unions to oppose the new industrial and economic policies.

December 1. Stone laid for the Sanskrit University at Kaladi, the birth place of Adi Sankara. 2. Balvinder Singh Nigah, an employee of the catering firm Chef Air, arrested for planting a bomb in Air India jumbo 'Emperor Ashoka'.3. Satinder Kumar Lamba appointed India's Ambassador to Pakistan; An all-party delegation from Tamil Nadu led by CM Jayalalita urges the PM to gazette the interim award on Cauvery; For the first time Lok Sabha question hour telecasts at 7.15 a.m. 4. The Lok Sabha approves a vital bill seeking to bring sick public sector units within the purview of the BIFR; Eminent Bengali novelist Bimal Mitra, 79, dies. 5. Sarkaria Report accepted. In UP 56 JD MLA's belonging to V.P. Singh faction-elect a new leader; The government reduces visa fees for tourists intending to visit India. 11. BJP President Murali Manohar Joshi sets out on the Kanyakumari to Kashmir ekta yatra (unity march); The centre notifies the interim order of the Cauvery Water Disputes Tribunal directing Karnataka to release 205 tmc ft of water to Tamil Nadu. 12.Violence in Karnataka over the centre's notification on Cauvery. 13. Justice M. H/ Kania of Maharashtra sworn in as the 23rd Chief Justice of India. 17. Narasimhan committee on Monetary Reforms recommends that there should not be any further nationalisation of banks, loan-melas assailed. 25. Ajit Singh expelled from the JD.

Demolition in Ayodhya

January 1992: 1. Petrol and diesel price hiked in eleven states to make it uniform all over the country; 4. The government promulgates an ordinance to prevent countermanding of election in the event of death of independent candidates; 8. Luggage rate of Railway passengers hiked by 30 per cent; 12. Kumar Gandharva, the renowned Hindustani musician, dies at 67; Punjab election set for February 19; India and Russia sign a new political treaty; 16. Prices of steel and iron decontrolled; For the

first time in a decade India decides to import one million tonnes of wheat; 18. Ordinance cuts minimum poll campaign time to 14 days from 20 days. 22. 'Bharat Ratna' for Netaji Subhash Chandra Bose and Maulana Abul Kalam Azad; Government raises Suzuki share in Maruti to 50 per cent making it the first public sector company to go private; 23. India becomes ASEAN dialogue partner; 25. 'Bharat Ratna' for JRD Tata; Swaran Singh and Vajpayee made 'Padma Vibhushan'; 26. BJP President Dr. Murali Manohar

shi hoists the national flag at the heavily-guarded Lal Chowk in Srinagar; Bharat Bhushan, the legendary romantic film hero of the 1950's dies at 71. 31. LTTE Supremo, V. Prabhakaran, declared offender in Rajiv Gandhi murder case and ordered to surrender by a Madras court; The Securities and Exchange Board of India given statutory power as an autonomous body.

February 3. Kapil Dev becomes the second highest wicket-taker in Test Cricket when he took his 400th wicket, that of Mark Taylor, in the fourth Test (New Zealand's Richard Hadlee with 31 wickets being the first). 4. A National Renewal Fund for industries set up; 5. D.D. Lapang takes over as the new CM of Meghalaya; Ajit Singh elected 'real J.D.' President; 6. The Centre decides to wind up the 7 year old. Food Processing Industry ministry; 10. Andaman and Nicobar islands to be opened up for foreign tourists; 17. Tripura's Congress (I) ministry falls as TUJS withdraws support; 18. 47 die in Tamil Nadu's Kumbakonam Mahamakhham stampede; 19. An all-time low turn out of about 30 per cent registered in the Punjab Assembly polls; A twelve-member Congress (I)—TUJS coalition ministry led by S.R. Burman sworn in Tripura; 21. Congress scores near three-fourth majority in Punjab Assembly elections; 25. Railway budget proposes 20% hike in Upper Class passenger fares; Beant Singh sworn in as CM of Punjab; 27. Prasimha Rao elected Congress (I) President in the party poll held after a gap of 20 years; 29. Rupee made partly convertible and I. Tax rates reduced in the Union budget.

March 11. Dr. Anita B. Bose-Pfaff, daughter of Netaji Bose, declines to accept the 'Bharat Ratna' conferred on her father; 12. India and the US decide to hold joint naval exercises in the Indian Ocean; The four-member break-away group of Telugu Desam recognised by Lok Sabha speaker; 14. NTR expels Upendra and six others from T.D.P.; 15. Screenplay writer Dr. Rahi Mazoomi (64) dies; 16. Satyajit Ray presented the honorary Oscar by a three-member Oscar committee at a Calcutta nursing home; 20. Satyajit Ray awarded 'Bharat Ratna'; 17. Suburban rail fare increase cut; 20% hike in first class, second class A/c sleeper and chair car reduced to 15%; 24. Congress (I) strength goes up by 6 seats in the Rajya Sabha on account of biennial polls; 26. Accord with Bangladesh on Tin Bigha; Rs. 245 crore relief in customs, excise duties announced; 27. India signs Friendship Treaty with Ukraine; 29. The expert committee recommends an autonomous council for the Jharkhand region of Bihar; 31. External Affairs Minister Madhav Singh Malvi resigns on Bofors letter issue; The PM to look after foreign affairs; The new five-year Export-Import policy relaxes restrictions.

April 1. The 79698 crore Eighth Plan launched;

ESI ceiling of Rs. 3000 comes into effect; 3. Nagaland brought under President's rule; 8. Congress (I) government led by Rajkumar Dorendra Singh sworn in in Manipur; 11. Nagaland Governor Dr. M.M. Thomas removed from office; Marathi cinema's Bhaichandra Govind Pendharkar gets Phalke Award; 12. The 350-tonne Budha statue salvaged from the Hussain Sagar where it had sunk in 1990; Communist leader M. Basavapunniah (77) dies; 14. The 79th Plenary session of the Indian National Congress opens in Tirupathi; 15. Union Carbide decides to sell its holdings in India to raise upto \$ 17 million for a hospital in Bhopal; 16. Arjun Singh, Pawar, Antony win CWC polls; the PM gives a new slogan to the nation—'Desh banao, desh bachao'; 18. Russia suspends transfer of rocket technology to India; 21. UN Secretary-General Boutros Boutros-Ghali visits New Delhi; RBI eases credit policy, lending rates reduced from 6 to 4; 13% interest ceiling on deposits; 26. Medha Patkar arrested in Gujarat, as the third Annual Goldman Environmental Prize of \$ 60000 is awarded to her; Jnanapith award winner Prof. V.K. Gokak (82) passes away; 30. Import duty on gold halved; minor concessions in direct taxes; Over 7 years after the gas disaster, a Bhopal court orders attachment of Carbide properties in India.

May 2. Former Orissa CM and PCC (I) President J.B. Patnaik arrested on corruption charges; 4. India and Russia sign a five-year agreement on trade and economic co-operation; 5. 'Prithvi', India's medium range surface-to-surface missile, successfully launched; 8. Eighth Plan outlay increased to Rs. 7,98,000 crores; Public Sector outlay goes up to 45%; 9. Killer brew claims 175 lives in Orissa, Excise Minister Prasanna Kumar Acharya resigns; National Housing Bank Chairman M.J. Pherwani resigns following the bank's involvement in the Security scandal; 10. Dr. D.S. Tyagi, Chairman of the Agricultural Costs and Prices Commission shot dead by suspected Sikh terrorists in Delhi; 12. Security scandal: RBI extends probe to four foreign banks; Ms. Santosh Yadav (Indo-Tibetan Border Police) becomes the second Indian woman to set foot atop Mt. Everest. 14. LTTE banned in India; 15. BSE closed; Harshad Mehta suspended; CBI begins probe into the security scam; 17. President, R. Venkataraman, leaves for a six-day visit to China; Import of 106 life-saving drugs and 37 equipments allowed; 19. Arjuna award for Tennis star Leander Paes and Hockey forward Jagbir Singh; 20. A scientific satellite SROSS-C launched into orbit by Indian-built D3 rocket from Sriharikota; LTTE supremo V. Prabhakaran heads the list of 41 accused in the SIT charge sheet; In T. Nadu Jayalalitha sacks R.M. Veerappan from her cabinet; 21. Manohar J. Pherwani, 58,

Chairman of the National Housing Bank passes away; 27. AIR's Patiala engineer M. L. Manchanda who was kidnapped by Babbar Khalsa militants found executed; 28. Indo-US naval exercises begin; 29. Agni-India's IRB missile successfully test-fired from Orissa coast for the first time since May 22, 1989.

June 2. The government accepts all the 15 recommendations of the Janakiraman Committee which unearthed massive collusion of banks in the security scam; 3. SBI Chairman M. N. Goiporia asked to go on leave following security scam; Kerala CM K. Karunakaran injured in a road accident; 4. Stock broker Harshad Mehta and his associates arrested; 6. Ordinance issued to attach the properties of persons involved in the security scam; 8. A 55-60% vote in the by-elections in Andhra, Bihar, W. Bengal and Delhi; Assets of 31 persons including Harshad Mehta attached; 9. Rajesh Khanna (Congress-I) defeats Shatrughan Sinha to wrest the New Delhi Lok Sabha seat from the BJP; In Kerala, LDF wrests Narakal while the UDF retains the Tanur assembly seat; 13. Security scam: assets of three SBI officials attached; 14. Tin Bigha activists lathi-charged in the Tin Bigha corridor in Coochbehar; 18. Congress (I) chooses Dr. Shankar Dayal Sharma as Presidential candidate; 20. The JD and the NF choose former Lok Sabha Dy Speaker Prof. G. G. S. Well as the Presidential candidate; CPM decides to back Dr. Sharma; Carnatic musician Maharajapuram Santhanam dies in a car accident in Villupuram in T. Nadu; 25. BJP bags eleven seats in the biennial elections to the Rajya Sabha, Congress (I) secures seven; 26. The Tin Bigha corridor leased to Bangladesh as per the Indo-Bangladesh agreement; 29. Congress (I) nominates K. R. Narayanan for the Vice-Presidency; 30. Over 20 Indian pilgrims die in Saudi Arabia due to heatwave and inadequate medical attention.

July 1. Major changes in Exim policy-farming and repacking included under the definition of 'manufacturer'; Truck operators begin nationwide strike to press for the abolition of toll tax and octroi; 2. Six new ministers inducted into the Union Cabinet; 4. Sanskrit made a compulsory subject from sixth to intermediate classes in Uttar Pradesh; 5. Centre scraps octroi in Union Territories; 6. R. Janakiraman Committee estimates involvement of Rs. 3543 crore in the security scam; The centre decides to allow TV and Radio time slots for private producers; 7. Truckers call off strike; 9. The government agrees to set up a Joint Parliamentary Committee to enquire into the security scam; 10. The first Indian-made satellite INSAT 2A shot into space from Kourou; Union Minister P. Chidambaram resigns owning responsibility for investing in 'Fairgrowth'; Dr. Najma Heptulla re-elected Dy.

Chairman of Rajya Sabha; 14. The Lok Sabha passes a bill seeking to confer on the President the powers of the Legislature of J&K 15. Lucknow High Court stays any construction activity near the disputed temple in Ayodhya 17. Lok Sabha rejects no-trust motion 22. The Supreme Court asks UP Government to halt construction in Ayodhya. Security scam Planning Commission member V. Krishnamurthy resigns. 25. Dr. Shankar Dayal Sharma sworn in as the ninth President of India CBI Jt. Director K. Madhavarao looking into the security scam resigns. 30. The Supreme Court declares that capitation fee in educational institutions is unlawful; 31. Sita: maestro Ravishankar wins the Magsaysay Award

August 1. PM Narasimha Rao dedicates Vizag Steel Plant to the nation; 5. The Supreme Court appoints a 3-member panel to visit Ayodhya and report on the new structures there; Achyut Patwardhan, 86, hero of the Quit India Movement, dies in Varanasi; 6. A 30-member JPC constituted to probe the security scam; 9. Golden jubilee celebrations of the Quit India Movement begin in Bombay; 10. Ram Niwas Mirdha appointed Chairman of the JPC on scam; 12. Seventy-two militants surrender before Punjab CM Beant Singh; 15. Karnataka seeks army help to nab sandal wood smuggler Veerappan; 17. Twenty members of the JD led by Ajit Singh break away from the parent body seeking separate seats in the Lok Sabha; 19. K.R. Narayanan elected the 9th Vice President; 22. The Congress (I) with its allies secures simple majority in Lok Sabha following the merger of Telugu Desam (Raju) into the party; 25. Karnataka Minister Veerappa Moily stripped of education portfolio; 27. The President issues two ordinances making it mandatory for new medical and dental colleges to obtain prior approval of the Medical and Dental Councils of India before their establishment; 29. Eco-mark to distinguish eco-friendly products, introduced in Indian market; 30. The first Indian-built A (Advanced Light Helicopter) successfully flown in Bangalore.

September 2. Delhi High Court indicts CBI in Bofors case; FIR and letters rogatory quashed; Delhi High Court verdict on Bofors challenge in the Supreme Court; 10. All movable and immovable properties of big bull Harshad Mehta and others involved in the security scam attached; 12. Hindustani classical vocalist Pandit Mallikarjun Mansoor, 81, dies in Dharwad, Karnataka; 13. Union government decides to form a National Human Rights Commission; 14. The government allows foreign investors to enter the Indian capital market, incentives offered; 15. Price of petrol, diesel and cooking gas hiked; 18. Andhra government orders setting up 12 private medical colleges quashed

a full bench of the
Court: Former Vice
President and Chief
Justice, M. Hidayatullah
dies; 22. Indo-British
Extradition Treaty
signed in London;
Parashad Mehta, re-
leased after 110 days in
jail; 23. Indian-designed
jetless target aircraft
"Lakshya" successfully
tested; 24. Five selected
regional TV channels go
national by direct link-
ing to INSAT; Union
Labour Minister an-
nounces a new export-
oriented emigration
policy in place of the
regulatory one; 25.
Karnataka High Court
stays Government Or-
der granting permis-
sion to open nine pri-
vate engineering colleges.

India's Leander Paes
defeats Britain's Jeremy Bates in the Davis Cup
final, New Delhi; 26. Indian Airlines hikes fare by
10 percent; 29. Andhra CM Janardhana Reddy
resigns. Forex norms relaxed for wide range of
purposes. Ramesh Krishnan and Leander Paes
put India into the World round of 16 nations in
the Davis Cup tennis by defeating Britain (4-1);
30. Laurie Baker wins Rs. 25 lakh UN World
Habitat award.

October 3. Geeth Sethi beats holder Mike
Russell of Britain (2529-718) to become the first
Indian to earn the world Professional billiards
championship in Bombay; 7. Vijaya Bhaskara
Reddy, Union Law Minister, selected to become
the new CM of A.P.; 8. RBI announces 1% cut in
the lending and deposit rates; 9. Sukha and
Jinda, assassins of former army chief Gen. A. S.
Vaidya, hanged in Pune jail; 14. Ten Indians
sentenced to 6 years in jail in the UAF on account
of staging a play in Sharjah; 15. Talwinder Singh
Parmar, the Babbar Khalsa founder who master-
minded the Kanishka jumbo explosion of 1985
shot by security forces in Punjab; 20. Nirad C.
Chaudhuri, 94, the Indian writer living in Oxford,
made honorary Commander of the British Em-
pire; 23. The dissident Ministers of Bangarappa
government in Karnataka resign. UPSC decides
to introduce a new essay paper for the civil
services examination; 24. Narmada World Bank
sets time to correct defects; 27. Veerappa Moily,
Minister of Parliamentary Affairs, resigns from
Bangarappa government in Karnataka; 28. Kar-
nataka government withdraws order allowing
nine private organisations to start capitation



fee based engineering colleges; 29. The first
Indian Ambassador to Israel, Komar Singh, pre-
sents credentials to President Chaim Herzog in
Jerusalem; 30. India and China decide to con-
tinue peace measures and open more points for
border trade.

November 1. The Superfast Rajdhani Express
train linking Bangalore and Nizamuddin (2452
km) flagged off; 2. Nine Maharashtra ministers
resign; 9. Ms. Chandrakha of resigns from IAS
and joins Tamizhaga Wellatchi Iyyakkam (Tamil
Movement for Good Government) led by Dr.
Subramaniam Swamy; 10. Attorney General G.
Ramaswamy, under cloud for his dealings with
Standard Chartered Bank, resigns; 11.
S. Bangarappa resigns as the CM of Karnataka;
15. At least 170 people die in the heavy rains and
floods in Tamil Nadu and Kerala; 37 die in
landslip at Meghamalai near Chinnamanur; 16.
Reservation Supreme Court rejects economic
criteria; 19. M. Veerappa Moily selected to be-
come the new CM in Karnataka; 21. Twen-
tyseven killed by a bomb blast engineered by
Bodo extremists in a bus in Assam; 24. Lok
Sabha approves bill seeking to confer Indian
citizenship to a child born to an Indian mother
outside India. Milan Kumar Banerjee appointed
Attorney General; 25. The Union Minister of
State for Sports Mamata Banerjee resigns to
fight Bengal CPM; 26. A government bill to curb
new medical colleges introduced in Parliament;
27. Sachin Tendulkar, 19 years and 22 days old,
becomes the youngest cricketer to make one
thousand test runs while playing in Johannes-
burg.

December 1. Seventeen Ministers of the BJP government in Rajasthan quit for the 'Karseva' at Ayodhya; 2. Dr. C. Rangarajan appointed Governor of the RBI; 4. RBI devalues Rupee by 1.18 % against the US dollar; India emerges overall champions with 10 golds; 8 silver and 14 bronzes in the 4th Asian Junior Athletic meet in New Delhi; 5. V. P. Singh and hundreds arrested in Barabanki on the way to Ayodhya; Actress Monisha, 21, winner of the 1987 'Urvashi' award for the Malayalam film 'Nakhakshathangal' dies; 6. The domes of Babri Masjid in Ayodhya demolished by Hindu fanatics; BJP government in UP led by Kalyan Singh dismissed, President's rule promulgated; Pakistan and Bangladesh condemn demolition; 7. Many killed in Ayodhya backlash; Advani quits as leader of the opposition in Lok Sabha; 8. World-wide protest against Ayodhya demolition—temples burnt in Pakistan and Britain; Advani, Joshi, Singhal arrested; Nation observes bundh; 9. Ayodhya: more than 700 die in clashes; BJP bundh partial; 10. The Central Government bans RSS, VHP, ISS, Bajrang Dal and Jamait-e-Islami; 11. UP acquisition of land in Ayodhya quashed by Allahabad High Court; 12. The world's largest monolithic granite statue of Lord Buddha, weighing 350 tonnes,

placed on the 'Rock of Gibraltar' in the midst of Hussain Sagar lake in Hyderabad; Government asks CBI to probe the demolition of the Masjid in Ayodhya; 14. R.S.S. Chief Balasaheb Deoras kept under house arrest and the national headquarters in New Delhi sealed; 15. BJP Governments of Sunderlal Patwa (MP), Shanta Kumar (HP) and Bhairon Singh Shekhawat (Rajasthan) dismissed; 16. The Parliament adopts resolution condemning the demolition of the mosque at Ayodhya; The Centre appoints a one-man judicial commission to enquire into the Ayodhya incidents; 18 BJP expresses regret over the demolition of the Masjid in Ayodhya in Parliament; 20. BJP launches campaign to oust Rao government; Vajpayee goes on fast; 21. BJP-sponsored no-trust motion against the Rao Government defeated 334-106 in the Lok Sabha, Vajpayee ends fast; 22. Lok Sabha adopts the constitution amendment bills regarding Panchayati Raj and Nagarapalika Bills— decentralisation of power to the village level; 23. Varma Commission indicts IB, the Centre and TN police for failure to protect Rajiv Gandhi; 27. The Central government decides to acquire the disputed area in Ayodhya. The Dalai Lama opens the Vivekananda Decade 1992-2002 in Kanyakumari.

Border accord with China

January 1993: 2. Allahabad court allows 'darshan' at Ayodhya. 4. Former UCO Bank chief K. Margabandhu arrested on charges of amassing wealth beyond his means. 6. India and Bhutan sign agreement on the giant Sankosh hydro-electric project. 7. The govt. acquires 67.703 acres of land in and around the disputed area at Ayodhya and refers the issue to the Supreme Court; Maharashtra Governor C. Subramaniam resigns. 8. Dr. P.C. Alexander appointed Governor of Maharashtra; FERA restrictions removed, resident Indians allowed to keep as much as \$500. 9. An Indian Airlines TU-154 plane crash lands in Delhi, all the 165 on board escape; Civil Aviation Minister Scindia resigns; PM cancels Dhaka visit; SAARC summit put off. 10. Advani, Joshi released on court orders; The 24th International Film Festival of India opens in New Delhi; India asks Pakistan to reduce its diplomatic strength by 40. 11. Communal violence in Bombay and Ahmedabad spreads; By-elections postponed. 12. Police firing at 15 places in Bombay; four Foreign militants arrested; Ramakanth Rath, well-known Oriya poet gets the Saraswathi Samman of Rs. 3 lakh. 13. Bombay death toll rises to 550 raising

the toll in the Ayodhya-related violence since December 6 to 753. 14. The Supreme Court absolves Railway Minister Jaffer Sharief of corruption charges in the wagon deal with Asea Brown Boveri. 15. PM asks for judicial probe into Bombay riots, sanctions Rs. 1 crore aid for victims. 17. LTTE commander Sadasivan Krishnakumar alias Kittu killed in the ship blaze off Madras coast. 20. Karnataka ministry expanded to include 27 more members; S.M. Krishna made Dy CM. 23. British PM John Major arrives in India for an official visit. 26. Sub Lt. Rubi Singh of the Navy becomes the first woman in India to lead an armed forces contingent in the Republic Day parade at New Delhi; British PM John Major attends as the first ever British head of Government as Chief Guest. 30. Renowned painter Dr. Syvatoslav Roerich, 89, husband of film actress Devika Rani, dies; Congress (I) MLA in Andhra Pradesh P. Balaraju and eight officials kidnapped by the outlawed People's War Group in Visakhapatnam district.

February 2. Prices of iron and steel hiked. 5. The Supreme Court directs the Union Government to forcibly produce Manipur Speaker Dr. Borobabu Singh before it on March

a contempt case. 7. Medium-range surface missile, 'Prithvi' successfully launched the 10th time. 8. India and Spain sign four agreements as the Spanish PM, Felipe Gonzalez, makes a two-day visit to New Delhi. 9. Silver Star crash as the govt allows passengers to board upto 100 k and reduces customs duty on 35 baggage items from 255 to 150%. 10. Congress (I) — AIADMK alliance in Tamil Nadu breaks over Hindi imposition. 11. The centre bans BJP in the capital on February 25; Naik sacks 6 ministers in Maharashtra; Andhra Naxalites release four out of six hostages; Veteran film producer-director Kamal Amrohi, 76, dies. 12. Baggage rules relaxed further. 15. India gains "rubber" after 6 years by beating England by an innings and 70 runs at Madras. 16. Dr. K. Ananta Murthy elected President of the Andhra Sahitya Akademi. 18. Congress (I) secures absolute majority in Nagaland and emerges as the single largest party in Meghalaya. 19. German Chancellor Helmut Kohl receives the Jawaharlal Nehru Award for International Understanding from the President; P. V. Narsimha Murthy sworn in as the Congress-I CM of Meghalaya; SC Jamir elected leader of the Congress (I) Legislature Party in Nagaland. 20. Government decides to form an Autonomous Council for the tribals within Assam to solve Bodo issue. 21. Naxals free Andhra Pradesh Congress (I) MLA P. Balaraju and a govt. official after 22 days in captivity. 22. Maharashtra CM Sudhakarrao Naik resigns in the wake of party dissidence. 23. Pre-budget Economic Survey proposes closure of sick PSE and rationalisation of tax and interest rates; Noted Hindi poet Naresh Mehta wins Jnanpith Award. 25. BJP rally in New Delhi foiled; 113 MPs arrested and Murali Manohar Joshi injured in police action; Kranti Renadev, a Naxalite under trial in Andhra, freed. 27. Rupee made fully convertible in Man Mohan Singh's third successive budget; Tripura CM Samir Ranjan Barman resigns.

March 1. India develops Phased Array Radars critical for its "Akash" surface-to-air missile and launches its indigenous main battle tank Arjun. 3. Sharad Pawar nominated CM of Maharashtra. 5. The government dereserves the mining industry throwing it open to private sector as well as to foreign investment. 9. AIADMK renews alliance with the Congress in Tamil Nadu; 14 bus passengers burnt to death in Andhra. 10. The 12-day-old caretaker Ministry in Tripura led by Samir Ranjan Barman resigns. 11. Gen. K. V. Krishna Rao returns toammu & Kashmir as Governor. 12. Over 200 die in car bombs blast Bombay. 14. India seeks Interpol's assistance in investigating the sources of bomb blasts in Bombay. 16. Central govern-

ment introduces pension scheme for 1.7 crore EPF subscribers. Bomb blast in a multi-storey building in Calcutta kills 70 people. 20. Memon brothers, the prime suspects in the Bombay bomb blast escape from Dubai; Kondapally Seetaramaiah, founder of the Peoples War Group of Naxalities in Andhra Pradesh arrested. The 68 Km Mangalore - Udupi: stretch of the west coast Konkan rail line opened by the PM. 22. The Lok Sabha passes the Indian Medical Council (Amendment) bill, 1993 and the Dentists (Amendment) Bill, 1993. 24. Six of Memon family escape to Karachi. 26. Surajkund AICC okays dual posts for Narasimha Rao. 27. Hari Singh from Haryana hijacks an IA plane, but surrenders after 8 hours. 30. India forgoes Narmada loan balance because of World Bank's strict regulations; Air Time Committee Chief P. S. Deodhar and members resign in protest against the implementation of the metro channel scheme of Doordarshan. 31. Major changes in exim policy announced; Foreign Secretary J. N. Dixit visits Myanmar, signs agreements on trade, control of drug trafficking and separatist movements along the borders; Kidnapped cardiac surgeon Dr. Abdul Ahad Guroo killed in Srinagar.

April 2. MP High Court quashes dismissal of BJP Government under article 356; the Centre decides to move the Supreme Court. 5. The Left and Democratic Front earns two third majority in the Tripura Assembly elections; Andhra Pradesh's CM K. Vijaya Bhaskara Reddy defeats TDP's Renuka Chowdhary by 31,611 votes in the Panyam Assembly election; National Film Awards: G. V. Iyer's Sanskrit film 'Bhagavad Geeta', best film; 6. Popular Hindi film actress Divya Bharati, 19, dies; 7. PM Rao arrives in Bangkok on a three-day visit to Thailand. 8. Extensive CBI raids on VHP offices, BJP M.P. Brijbhushan Saren Singh among five arrested; Veteran tribal leader and Dasarath Deb elected leader of the Left and Democratic Front legislature party in Tripura. 9. Lt. Gen. B. C. Joshi to be the next army chief. 10. Student hijackers of IA plane overpowered in Lucknow. 11. Tamil Nadu and Karnatak decide to form a joint task force to nab Veerappan and announces a reward of Rs. 40 lakhs for his capture. 12. Indian ship MV Vishva-Mohini sinks off Spain; 33 killed. 13. Bhupen Hazarika wins Phalke Award for 1992. 14. The Cabinet Committee approves delicensing of car, refrigerator and leather goods industries. 16. The Supreme Court stays the operation of M.P. High Court's order quashing President's rule in the state. 18. BJP issues white paper on Ayodhya. 19. Film star Sanjay Dutt held under TADA for possessing an AK-56 rifle. 20. Jharkhand Movement suspends its 36 days old economic blockade. 21. India announces

establishing proof in Pakistan's complicity in Bombay bomb blasts. 22. Air India engineers call off their 56-day-old strike. 24. IA's Delhi-Srinagar Boeing with 141 persons hijacked by a Kashmiri militant lands in Amritsar; Congress dissidents KN.Singh, Natwar Singh, KL.Fotedar and Shiela Dikshit suspended. 25. IA plane hijacker shot dead by commandos; all persons rescued. 26. Indian Airlines' IC 491 crashes at Aurangabad, killing 55 passengers. 27. A national credit fund for women called the Rashtriya Mahila Kosh set up. 28. Troops storm police complex in Srinagar and free officials from the rebelling 2000 policemen.

May 1. Socialist stalwart N.G. Goray, 86, dies in Pune. 4. Santosh Yadav becomes the first Indian woman to conquer the Everest twice. Income Tax exemption limit raised to Rs.30,000; Customs duty on certain drugs reduced. 5. The Communication Ministry restores the bi-monthly 150 free phone calls to subscribers; Sanjay Dutt released on bail. 6. Violence in Orissa state secretariat, CM manhandled. 7. Janakiraman panel's final report finds that an additional aggregate of Rs. 12,85,549 crore was transacted in banks without any documentation; it indicts 12 more banks for involving in the scam. 8. Indian Airlines CMD L. Vasudev resigns; By-elections in Kerala, TN deferred. 9. Congress (I) issues whip for conscience vote in the impeachment motion against Justice Ramaswami; S. Mulgaokar, 82, journalist, dies. 11. Toy factory fire kills over 200 people in Bangalore; The Lok Sabha fails to impeach Justice V. Ramaswamy for want of the requisite two thirds majority as Congress (I) members abstain from voting; ULFA abductors kill tea estate executive K.K. Mittal. 12. Lok Sabha okays extension of president's rule in the former BJP-ruled states. 14. Justice V. Ramaswamy decides to resign; Bombay High Court upholds Goa C.M. Ravi Naik's disqualification by speaker under anti-defection bill. 15. Field Marshal K.M. Cariappa, 93, dies. 17. Visiting Israeli Foreign Minister Shimon Peres signs an MOU with his Indian counterpart to end nearly 4 decades of inactivity in bilateral relation; Goa CM Ravi Naik resigns; Dy. CM Wilfred D'Souza elected to succeed. 18. A division bench of the Allahabad High Court stays the ban on RSS. 19. Government decides to merge Vayudut with Indian Airlines. 22. The Congress (I) suffers reverses in the by elections. Karnataka special task force guns down Veerappan's brother and right-hand man, Arjunan. 23. Rajasthan Governor Channa Reddy shifted to Tamil Nadu, Motilal Vohra appointed in UP and B. Satyanarayan Reddy moved to Orissa; PM arrives in Tashkent. 24. India and Uzbekistan sign five pacts; Eight of Veerappan gang shot dead; 6 Karnataka cops die in

ambush. 26. The Centre decides to implement the Mandal Commission recommendation to provide 27% reservation for the socially and educationally backward classes in the Central Services from 15th June. 31. All manufactured items brought under duty drawback scheme.

June 1. Speaker disqualifies 4 Ajit group MPs. Burkino Faso President Blaise Compaore visits India. 2. Kurla-Kochi Express rams goods train near Jolarpet — 22 killed, and 100 injured. 3. IOC Chairman KN Venkatasubramanian suspended for leaking information about oil purchase plan to international dealers. 4. LK Advani unanimously elected President of BJP. The Babri tribunal strikes down ban on RSS and Bajrang Dal and upholds outlawing of VHP. 5. Unlawful Activities (prevention) Tribunal headed by Justice PN Nagi upholds the ban on Islamic Seva Sangh. 7. Sai Baba escapes attempt on life, four assailants and two bodyguards killed. 15. PM Narasimha Rao visits Oman; India and Oman decide to give each other MFN status. 16. Harshad Mehta accuses PM of taking Rs. 1 crore payoff from him in November 1991; Rao terms it malicious and unfounded. 17. Congress (I) working committee reaffirms its faith in Rao. BJP asks for PM's resignation. 18. The 14th national council of the BJP at Bangalore swears by Hindutva; Advani takes over as President; Businessman Sunil Mittal denies getting any money from Harshad Mehta. 20. Harshad Mehta's senior counsel Ram Jethmalani asks JPC to summon PM and allow cross-examination. 22. Ordinance to amend Consumer Act issued; Government doctors and hospitals kept out of it ambit; JPC draft report raps B. Shankaranand and censures Manmohan Singh; The centre bans the use of 12 pesticides. 23. Motilal Vohra made governor of UP; RBI cuts minimum lending rate by 1%. 24. Nanchil K. Manoharan, former DMK Finance Minister expelled from the party. 25. SBI MD. Mahadevan sacked in the wake of his role in the securities scam. 28. A multi-millionaire industrialist, main financier of smuggler Veerappan, and 6 Veerappan-men arrested. 29. Twentyfour jawans killed in ambush by NSCMilitants in Manipur.

July 2. ONGC converted into corporation by ordinance; Delhi High Court stays the Lok Sabha Speaker's order disqualifying four Janata Dal MPs under the anti-defection law. 5. Supreme Court dismisses the stay petition of Union Government regarding lifting of ban on the RSS and the Bajrang Dal by the Babri Tribunal. Air Marshal Swarup Krishna Kaul appointed Chief of Air Staff. 6. JPC decides to send 'interrogatory letters' to PM's aide R.K. Khandekar, Sunil Mittal and 7 others; In J&K 39 killed and officials abducted. 9. Passport fees raised from Rs. 60 to Rs.300. 12. West Bengal Governor Dr



Orator and Poet: Vajpayee

Nurul Hasan, 72, dies. 15. JD (A)'s Ajit Singh pegs his group's support to government on PM's appearance before the JPC; Punjab Minister of State for Irrigation Mainerjit Singh Bitta appointed new Youth Cong (I) President. 16. Russia cancels cryogenic rocket deal with India. 18. Jayalalitha goes on fast on Cauvery issue; rail, road traffic disrupted. 19. Dr. Banoo Coyaji, 75, gets Magsaysay Award for Public Service; Times of India editor Girilal Jain, 71, passes away; India beats France, 3—2 in a sensational Davis Cup tie to enter semi-final. 20. Chander Mohan, son of Haryana CM Bhajanlal, wins the by-elections in the Kalka assembly constituency by a margin of 61,800 votes. 21. Jayalalitha ends fast, centre to set up committee, Karnataka rejects the proposal. 22. Swiss Justice ministry reveals that Hinduja, Quatrocchi and Win Chadha are among the seven appellants fighting to prevent the transfer of Bofors pay off names to India; PM's aide, R.K. Khandekar, denies Harshad Mehta's charges. 24. Vajpayee elected leader of the Opposition in Lok Sabha; 27. Rao faces deep crisis as JD (A) and AIADMK decide to vote for no-confidence motion. 28. Rao government defeats no-confidence motion by 265-251 votes, seven of the JD (A) vote with government. 29. Two bills seeking to delink religion from politics and to empower the EC to debar parties with religious

names introduced in Lok Sabha. 30. CBI arrests Bhupan Dalal and three other brokers for cheating of LIC Mutual Funds involving 173 crore. 31. Transport operators begin nation-wide strike.

August 2. Seven JD (A) rebel MPs admitted to Congress (I); CEC Seshan postpones all elections including by-elections to December in protest against the government's attempt to subjugate the Commission. 3. Government assures Lok Sabha that it will revive the proposal for a multi-member election commission; Bill to regulate cable TV introduced in Rajya Sabha. 4. Swami Chinmayananda, 76, passes away in San Diego. 6. Medha Patkar suspends anti-Narmada stir and drops

her 'Jalsamarpan' threat. 10. Election Commission withdraws controversial order. By-polls before September 10. 13. All the TDP MLAs suspended from Andhra Pradesh Assembly; Rama Rao vows not to return to the house unless the government is ousted. 14. Fifteen bus passengers massacred in J&K; New governors for MP, Bihar, West Bengal & Tripura. 15. Five more Doordarshan channels launched. 18. The Transport Development Council decides to abolish Pathkar (entry tax) and increase the fee for National Permit from Rs. 1500 to 5000. 19. Sharad Pawar declared elected to Maharashtra Legislative Council from Pune; Actor, playwright Utpal Dutt, 64, passes away. 22. VP Singh leaves Delhi on a self-imposed exile vowing not to return until the government implemented job reservation for backward classes; Gundu Rao, 56, former CM of Karnataka, passes away. 24. Unable to muster two thirds majority, the government puts off Religion Bills debate. 28. President's rule in J&K extended for another six months. 30. LPG, Petrol dealers get higher commission. 31. Pranab Mukherjee rejoins Union cabinet as Commerce Minister.

September 1. RBI cuts lending and deposit rates by one percent; Additional price stickers on packed goods banned. 2. Vice Admiral V.S. Shekhawat appointed new naval chief. 3. Pawar resigns from Lok Sabha to take up the newly

won Maharashtra Legislative Council seat. 4. New Bank of India merged with Punjab National Bank; Lawyers all over the country decide to abolish addresses like 'my lord', 'your lordship' and replace them with 'Sir', 'Your Honour,' etc. 5. The CEC announces that birds and animals will not be allotted as poll symbols in future as birds allotted as symbols in Tamilnadu were killed by rival groups. 6. CPI (M) wrests Congress (I) bastion of Chowringhee in the by-elections to the WB Assembly; Durgapur and Kurseong also won by CPI (M). 7. India and China sign border peace accord. 8. Mandal Commission recommendation of 27% job reservation for the backward classes brought into effect; Creamy layer excluded; Andhra cabinet reshuffled by dropping 4 and bringing in 16 new faces. 9. Bharat Bandh called by NF-Left Front against the centre's industrial and economic policy; PM Rao arrives in Seoul for a three-day visit. 10. India and South Korea sign agreement to expand trade and investment. 11. Blast outside Youth Congress (I) headquarters in Delhi: 8 killed, Youth Congress (I) President Mr. Bitta escapes; former Andhra CM Rama Rao, 71, weds 44-year-old college lecturer Lakshmi Sivaparthi. 15. Election Commission announces polls in the former BJP-ruled states of UP, MP, H.P, Rajasthan and in Delhi and Mizoram. 16. Truck operators begin indefinite strike against the levy of composite fee on national permit. 20. PM Rao arrives in Teheran on a three-day visit. 23. Six Karnataka ministers including Dy. CM S.M. Krishna resign. 25. Soli Sorabji, 63, nominated as Prosecutor of the International War Crimes Court for the former Yugoslavia by UN Secretary General. 28. The 13-day-old strike by 1.8m truckers against increase in composite fee on national permit withdrawn. 29. National Human Rights Commission set up; JD, JD(A) and BJP merge to fight BJP in the Assembly elections. 30. Quake kills thousands in Maharashtra, Obliterates about 40 villages in Latur and Osmanabad districts.

October 1. Two more Election Commissioners appointed. 4. PM surveys the quake-hit villages, Rs.50 crore sanctioned. 5. CBI chargesheets 40 in Ayodhya case — Advani, Joshi and Bal Thackeray among accused; Geeth Sethi retains world Billiards title by beating Mike Russel. 7. The Supreme Court rejects private management's plea for 50% quota in private professional colleges. 11. CBI files chargesheet against stockbroker Hiten Dalal and three others for defrauding Canbank Mutual Fund over Rs. 102 crore. 12. RBI liberalises credit, monetary policy; National Environment Council with PM as chairperson set up.

November 6. First-ever elections to the Delhi Assembly. 9. Tamilnadu Assembly urges Centre to amend Constitution to retain 69% reservation

for backward classes. 14. Former Finance Minister Yashwant Sinha, who quit JD joins BJP. 15. The Supreme Court rules that the CEC is supreme; IA Airbus with 272 on board forcelands on a paddy field near Tirupati; all passengers safe. 16. Kashmir's 32-day-old Hazaratbal impasse ends with militants' surrender. 19. Indira Gandhi Prize for Peace, Disarmament and Development awarded to Czech President Vaclav Havel. 20. The RBI clears two more private banks — The Times Bank Ltd and the Indus Ind Bank Ltd. 21. India and South Africa sign historic pact on re-establishing diplomatic and consular relations after a gap of 50 years; Foreign Minister R.F. Botha moots a grouping of Indian Ocean countries. 22. Himachal Governor Gulshan Ahmed resigns in the wake of an official report that he canvassed for his son in Satna. 23. 'The Bullshit', a Turkish film wins the Golden Elephant in the 8th International Childrens film festival in Udaipur. 24. India and Pakistan decide to have Foreign Secretaries meet on January 1. 27. Splendid bowling by Anil Kumble (six for 12) helps India to beat West Indies by 102 runs in the Hero Cup finals in Calcutta. 28. JRD Tata, 89, passes away in Geneva.

December 1. Tata Steel's Amit Bhaduria win's India's first gold medal in the 10th Asian Track and Field meet in Manila in discus throw. 2. Madanlal Khurana sworn in as BJP Chief Minister of Delhi. 3. Virbhadra Singh sworn in as Congress CM of Himachal Pradesh; Bahadur Prasad wins silver in 1500 m in Asian Track and Field meet in Manila. 4. Mulayam Singh Yadav, takes over as CM of UP; Bhairon Singh Sekhawat of Congress sworn in as CM of Rajasthan; Bahadur Prasad wins the second gold medal in 5000 m in Asian Track and Field meet in Manila. 5. Congress forms its seventh Ministry in Madhya Pradesh. Digvijay Singh CM; Congress and MJD regains Mizoram. 7. Lalthanhwala sworn in CM of Mizoram; B.J.P leaders Advani, Joshi and Kalyan Singh arrested in connection with Ayodhya demolition case. 10. Kerala Congress(M) splits; Four MLAs including Minister T.M. Jacob expelled. 20. India and Council of European Union sign a co-operation agreement in Brussels; Bangarappa expelled from Congress for 6 years. 21. JPC indicts RBI and Finance Ministry in the multi-crore security scam. 23. STAR TV buys 49.9 percent equity of Zee TV; PM announces Local Area Development Scheme by which each MP can sanction projects worth Rs.1 crore. 29. Government of Kerala decides to steeply increase college fees. 30. Government gets majority when 10 members of Ajit faction of the JD merge with the Congress. 31. Manipur placed under President's rule; SEBI Chairman G. V. Ramakrishna made Member of Planning Commission; Bangarappa launches Karnataka Congress Party.

1994 at a glance

January, 1994: 1. Veteran Marxist leader and Ex-Revenue Minister K. R. Gowri of Kerala expelled from party for dissidence. 2. India and Pakistan resume talks after a gap of 16 months; landslide win for GNLF in the Darjeeling Gorkha Hill Council elections. 3. Stalemate persists on the Kashmir issue during Indo-Pak talks that concluded in Islamabad; Deputy Chief Minister S. M. Krishna and seven Ministers quit Karnataka. 4. Music director R. D. Burman, 56, dies. 5. Jnanpith Award for Oriya Poet Sitakant Mahapatra; Tamil Nadu Assembly passes two Bills making the Chief Minister, the Chancellor of all universities instead of the Governor. 7. Mahatma Committee recommends privatisation and foreign participation of LIC and GIC; Gowri launches new movement for the downtrodden. Sri Chandra Sekharendra Saraswathi, 99, Paramacharya Kanchi Kamakoti Mutt, dies. 9. Indian diplomats and staff members evacuated from war-ravaged Kabul. 11. LPG price raised by Rs. 15. 12. S. S. Nadkarni, Chairman of National Stock Exchange appointed SEBI Chairman. 13. Union government decides to withdraw all controls over coffee marketing. 15. Bandh and violence in Marathwada and Shivsena-sponsored protest against renaming of university spread. 17. The Supreme Court clears the deck for conferment of Bharat Ratna and other titles by staying challenge petitions. 18. India hires the law firm McAuliffe, Kelly and Rafaelli for lobbying in Washington; University renaming: two killed in firing in Marathwada; Narasimha Rao decides to retain Veerappa Moily as Karnataka Chief Minister; a 12 point formula mooted to defuse the ministerial crisis. 19. Chief Ministers decide to request Chief Election Commission to implement the photo identity card scheme in phases. 20. Election Commission rejects government's plea on identity cards in phases; Chinese film Farewell, My Concubine and Adoor Gopalakrishnan's Vidheyan adjudged best foreign and Indian films in the 25th International Film Festival at Calcutta. 21. India and Myanmar decide to open border trade. 24. Singapore Prime Minister Goh Chok Tong arrives in New Delhi on a state visit; India signs three agreements with Singapore on tourism, shipping and avoidance of double taxation; India sends six proposals to Pakistan to resolve bilateral problems. 27. Thirty three elected unopposed to Rajya Sabha; Fifty five minors trapped inside New Kendra Colliery of Eastern Coal fields die; The Union Cabinet approves the

proposal to include the land reforms laws in the 9th Schedule of the Constitution. 29. Air India and Indian Airlines converted into companies. 31. Punjab and Haryana High Court orders plastic surgery to remove Jebkatri (pickpocket) tattooed on the forehead of four women by Amritsar Police; Milind Desai, 12, the youngest editor in Gujarati journalism, dies of leukemia; The Supreme Court directs Apollo Hospitals to deposit Rs. 7 lakhs in the Madras High Court as interim relief to tennis star V.Chandrasekhar for alleged brain damage during an operation for knee injury.

February 1. Prime Minister Rao lambasts the spectre of law-court proxy wars and trans-border exports of terrorism at the World Economic Forum meeting at Davos, Switzerland; Petrol, diesel price hiked; ONGC becomes a Public Limited Company. 4. India elected to the executive boards of UNDP, UN Population Fund and UNICEF. 6. Indian Union Muslim League splits. G.M.Banatwala elected President in place of Ibrahim Sulaiman Sait. 9. Disqualification of former Goa Chief Minister. Ravi Naik under anti-defection law in 1991 set aside by Supreme Court; Kanpur rocked by violence following the killing of the former BJP corporator Kala Bachcha. 14. V. P. Singh elected JD Chief in place of S.R.Bomma who stepped down; The controversial Supreme Court Judge V.Ramaswami who survived an impeachment motion in Parliament, retires. 15. Rupert Murdoch announces in New Delhi that he would launch a pay-TV Channel in Hindi among other ventures in India. 17. Bihar leader Ram Lakhan Singh Yadav and Mizoram's Dr. C. Silvera inducted into the Union Cabinet; Gujarat Chief Minister Chimanbhai Patel, 65, passes away; Former US Congressman Stephan Solarz named Ambassador to India. 18. India rejects OIC offer to mediate on Kashmir; Noted Kathak exponent Gopikrishna, 61, dies. 19. Chambal dacoit Phoolan Devi freed on parole after 11 years of incarceration; IRBM Agni test-fired successfully for the third time. 20. Government makes the first appointment under 27 percent reservation for Other Backward Classes in Central Services and Public Sector Undertaking. 22. Parliament warns Pakistan to keep off J&K. Punjab brought back to international air map after 10 years with the introduction of flights to 8 countries from Amritsar Rajasansi Airport. 23. India rebuts Pak charges on Kashmir in the 53-nation UN Commission on Human Rights. 24. Sharp increase in freight rates in the

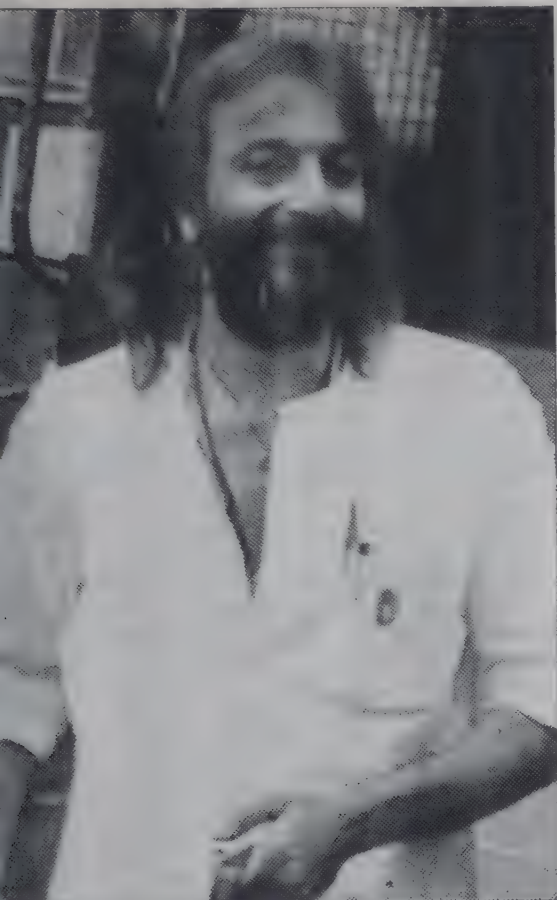
1994-95 Railway budget; Pre-budget Economic Survey puts GDP growth in 1993-94 at 3.8 percent. 28. Budget with Tax Concessions of Rs.4081 crore and a deposit of Rs.9060 crore presented by Dr.Manmohan Singh in Parliament.

March 1. Film maker Manmohan Desai, 58, falls to death in Bombay. 2. President's rule in J & K extended; Autonomous Hill Council for Leh set up; Tata Tea executive Bolin Bordoli freed by Bodo militants after 329 days in captivity. 4. Polish President Lech Walesa's visit to India leads to three bilateral and multilateral agreements. 7. India and Iran sign three Memorandum of Understanding in Tehran. 9. Pakistan withdraws Kashmir resolution at the UN Human Rights Commission session in Geneva; The first lady of the Indian screen Devika Rani Roerich, 87, dies in Bangalore. 11. The Supreme Court upholds sacking of BJP Governments; Balasaheb Deoran quits as RSS Chief; Rajendra Singh to succeed. 14. Prime Minister Rao arrives in London for a four-day official visit. 17. Wali Mohammad Ito, former Speaker of J & K Assembly shot dead by militants. 18. The Supreme Court strikes down Centre's order banning Jamat-e-Islami Hind; Expelled CPM Leader in Kerala K. R. Gowri and her followers float new Political Party named Jandhipatya Samrakshana Samiti (JSS); Frank Wisner nominated US envoy to India; Stephen Solarz withdraws. 20. Pakistan closes down its consulate in Bombay. 21. Pakistan blocks access to Indian consulate in Karachi. 23. Despite political differences, India is high on US business agenda, asserts visiting US Asst. Secretary of State Robin Raphel. 25. Clinton invites Indian Prime Minister to visit the US; Bhutta Singh exonerated by the Akal Takht after 9 years. 26. The Centre agrees to the Rs.2,200 crore Southern Gas grid to transport gas from Western fields to the Southern States. 28. G-15 summit opens with only 6 heads of Government in New Delhi; Leaders attack trade protectionism. 30. Exim Policy streamlined to attract exporting community; G-15 summit in New Delhi decides to set up a trade panel. 31. Argentina President Carlos Menem visits India; India and Argentina sign trade pacts; The Supreme Court orders to close down eleven Industrial Units around Taj Mahal; Retiring ISRO Chairman U.R. Rao announces agreement with Russia for supplying 7 cryogenic engines.

April 1. Five ministers resign from the Wilfred D souza Government in Goa. Union Minister of State for Railways K. C. Lenka and Minister of State for Finance Abrar Ahammed resign; Lt. Gen.Satish Nambiar appointed Dy Chief of Army Staff. 2. Governor Bhanu Prakash Singh dismisses Wilfred D souza Government in Goa. Ravi Naik sworn in Chief Minister. 3. Goa Gov-

ernor Bhanu Prakash Singh resigns; Kerala Governor B.Rachaiiah takes charge; Former Chief Minister S.Bangarappa launches his Karnataka Congress Party. 4. Goa Chief Minister Ravi Naik resigns. 7. US Dy Secretary of State Strobe Talbot in India; US wants talks on Kashmir revived. 8. Dr.Wilfred D Souza reinstalled as Goa Chief Minister. 9. Former General Secretary of Communist Party of India C. Rajeshwara Rao, 80, dies in Hyderabad. 14. In Karnataka Veerappa Moily expands his cabinet by including. 16. Rajasthan government challenge GATT agreement in Supreme court. 21. Malayalam sweeps National film awards. Mammooty, Shobhana best actor and actress; T.V. Chandran best director; Buddadeb Das Gupta's Bengal Charachar adjudged best film. 22.Chabbildas Mehta sworn in as Gujarat Chief Minister. 23. Former Indian Union Muslim League president Ibrahim Sulaiman Sait floats a new party - the Indian National League. 24. Industrial magnate S.L.Kirloskar, 91, dies in Pune. 27. Supreme Court strikes down section 309 of the Indian Penal Code(which makes suicide a punishable offence) violative of Article 21.n

May 1. Six leading Akali factions dissolved to form a new party, the Shiromani Akali Dal Amritsar, which wants a 'Sikh State'. 3. Election Commission recognises DMK headed by M. Karunanidhi as the rightful claimant to the symbol of rising sun and the flag reserved for it. 4. The fourth ASLV-D4 blasts off from Sriharikota successfully placing the Sross-C2 satellite in orbit; More tax reliefs for SSIs announced; TVSNL defers mega Euro-issue of global depositary receipts equivalent to 20 million equity shares following difficulties in securing the targeted price. 5. Revolt against Nar Bahadur Bhandari government in Sikkim, Sanchama Limboo elected new leader. 7. Textile magnate Sunit Khatau, 55, shot dead; Drupad Maestri Ustad Nasin Zahiruddin Dagar, 62, dies at Bareilly. 13. Renowned environmentalist Maurice Strong chosen for the Jawaharlal Nehru International Understanding awarded for 1992; Telecom sector opened to private companies under the new national policy announced in Parliament. 14. LTTE banned for the second time under the Unlawful Activities (Prevention) Act, 1967; Rao announces tight monetary policy. 15. Prime Minister Rao arrives in New York for a week-long visit. 17. Nar Bahadur Bhandari voted out of Sikkim; Sikkim Sangram Parishad(s) leader Sanchaman Limboo takes over as Chief Minister. 20. Indian ship rescues over 2000 Indian nationals trapped in the embattled Yemen port city of Aden; Veteran Congress leader and former Chief Minister K. Brahmananda Reddy, 83, dies in Hyderabad. 21. The Union Government imposes blanket ban on capitation fees



Long wait: Sanjay Dutt

admission to private professional colleges; JKLF leader Mohammed Yasim Malik announces readiness to eschew violence provided the centre guaranteed a dialogue without pre-conditions. 9. Congress wins 5 out of 7 Lok Sabha seats for which by-elections were held.

June 4. Army successfully testfires the short range surface-to-surface missile, Prithvi. 6. In-recent behaviour with airhostess: Haryana Minister Chhattarpal Singh loses job; The 20-year old Limboo Ministry in Sikkim wins vote of confidence. 9. Dharendra Brahmachari, 70, the controversial yogi, killed in air crash in Jammu. 10. AICC meet in Delhi vows to eschew politics of religion. 14. Government drops bill on poll panel. 16. Kerala Finance Minister Oommen Chandy resigns over Rajya Sabha seat issue. 17. Twelve Opposition legislators in Sikkim resign. 18. The strength of the Sikkim Sangram Parishad ministry led by Sanchaman Limboo reduced to 4 in the 32-member house when three ruling party members including two ministers resign. 20. Anti-Pakistan slogans rent the air in Jammu and Kashmir against the killing of Quazi Nissar

Ahmed, Mirwaiz of South Kashmir gunned down by Pak-aided terrorists. 21. The Janata Dal splits again when 14 of its 39 Lok Sabha members seek separate seats as a group. 23. Two Britons held hostage by terrorists in Kashmir for 17 days set free. 25. Bombay's former underworld don Haji Masthan Mirza dies. 28. Janata Dal split formalised; George Fernandez elected President of the break-away group. 30. India and Russia sign nine new treaties on the occasion of Prime Minister Rao's official visit to Moscow.

July 4. Cine actor Sanjay Dutt remanded to judicial custody till the completion of the Bombay bomb blast trial. 5. Literary genius Vaikom Mohammed Basheer, 86, dies in Bepore in Kerala. 9. Punjab Governor Surendra Nath and 9 members of his family die in an air crash in the Kulu Valley. 11. Delhi Inspector General (prisons) Kiran Bedi wins Magsaysay Award for public service. 12. India expels Pak diplomat, official; Indian attache tortured in Islamabad. 14. Delhi witnesses a massive Congress rally to celebrate Prime Minister Rao's three years in power; Sandalwood smuggler Veerappan declared 'proclaimed offender.' 16. Prime Minister orders probe into sugar scam. 18. Chinese Vice President and Foreign Minister Qian Qichen sign tax pact with India. 19. Bandit queen Phoolan Devi marries her elder sister's ex-husband Umed Singh; The Tamilnadu Bill for continuance of the 69 percent reservation policy in the state receives the President's assent; Indian Airlines hikes fare by 15%. 21. The Supreme Court declares that SC/ST will lose status on migration to other states. 24. Bodo extremists kill 46 refugees in a relief camp in Barpeta district of Assam. 26. Government rejects JPC report on securities scandal, Manmohan and colleagues absolved. 28. Uproar in Parliament over the Government's rejection of JPC report; Sudhakarrao Naik, G. Ramanujam and O. N. Srivastava appointed Governors; Germany makes financial commitment worth Rs. 920 crores for setting up various projects in India. 29. Opposition stalls parliament proceedings over the Action Taken Report on JPC finding; Germany backs India's bid for UN Security Council membership.

August 1. The Opposition decides to quit Parliament panels over the rejection of JPC findings; The Railway passenger insurance scheme comes into force. 2. Opposition quits Parliament panels, boycotts sessions. 5. Yakub Abdul Razak Memon, a key accused in 1993's Bombay blast case arrested; Manmohan withdraws certain remarks from the Action Taken Report on the security scam and apologises to Parliament. 6. The Muslim Aqaf Trust takes over charge of the Hazratbal shrine after the removal of security bunkers around it by authorities. 10. President's rule in J&K extended

for another 6 months from September 3. 13. North Korea and the US agree to ease nuclear tensions on the Korean peninsula and prepare for diplomatic links. 16. Government agrees to present revised ATR on JPC report on Scam; Parliament crisis defused. 17. Opposition ends Parliament boycott. 19. Rupee made fully convertible on current account. 26. Six more members of Memon family arrested. 30. In Tripura civil poll the ruling CPC-led Left Front captures large majority of gram panchayat seats.

September 3. The government decides to disinvest government holding in 21 Public Sector Units including ITI, IOC and ITDC. 4. Four more suspects in the Bombay blast case arrested by Interpol in West Asia. 6. Prime Minister Rao confers with his counterpart Vo Van Kiet at Hanoi; both countries decide to boost ties. 12. UN Secretary General Ghali visits New Delhi; India rejects his offer of mediation on Kashmir. 14. Union cabinet approves modified drug policy to bring down price control drug from 73 percent of the total to 50 percent. 21. Industrialist Ramakrishna Bajaj, 72, dies. 24. Surat declared plague affected; death toll rises to 36 by official counts; Kerala Forest Minister K.P. Viswanathan resigns. 29. Gulf nations suspend Indian flights on account of plague epidemic; Cable Television (regulation ordinance) issued.

October 1. Jammu & Kashmir government frees 376 suspected militants on the eve of the 125th Gandhi Jayanthi day. 2. Five die of pneumonic plague in Delhi, Surat toll rises to 47; Gandhiji's 125th birth anniversary, Gandhi Peace Prize on the lines of Nobel Peace Prize instituted. 4. The US decides not to invoke trade law Super 301 against India regarding textiles; The centre decides not to disturb the Mulayam Singh government in UP, rules out Hill State. 8. Agitation against the telecast of Urdu news by Bangalore Doordarshan turns violent, 16 die. 14. Election Commission stays telecast of Urdu bulletin from Bangalore Doordarshan Kendra. 15. A nine-member non-political trust of Shankaracharyas and religious heads formed for constructing Ram Temple at Ayodhya. 16. IRS P-2 successfully placed in orbit; CIA connection to CN Annadurai alleged in book on Seshan, Jayalalitha obtains stay. 17. RBI deregulates interest on lending; Seshan's controversial biography-DMK too obtains stay. 18. Dilip Popley and Sunita Kewalramani of Bombay creates history by getting married on a chartered Air India's Airbus. 19. Kuki militants push a crowded bus into a gorge in Manipur killing 37, of whom 30 were Nagas. 21. Government notifies substantial increase in the ceiling on election expenses on Lok Sabha and Assembly polls. 22. Plague scare: DGCA bans unilateral operations by foreign airlines in India. 24. The Supreme Court refuses

to answer Presidential reference on Ayodhya acquisition of disputed land upheld. 25. Gulf countries withdraw the air blockage against India imposed on account of plague; Justice Ahmad Mushabber Ahmadi sworn in as Chief Justice of India; Onion export banned following a continuous spurt in prices. 28. IA, AI flights disrupted as pilots go on strike. 29. Over 25 MLAs dropped from Karnataka Congress list for Assembly polls. 30. Former External Affairs minister Swaran Singh, 87, dies; India seeks Chinese support for Security Council membership. 31. Twenty six die as cyclone lashes Tamilnadu. Both sons of Railway minister C.K. Jaffer Sharief denied tickets in Karnataka elections. Ramakrishna Hegde not contesting.

November 1. Prime Minister Rao takes over the Department of J&K in the light of ministerial quarrel in the Home Department; Government upgrades 6 Air Taxi Operators as full-fledged airlines. 2. Three British hostages freed in Saharanpur, UP, after fierce encounter. 5. Russ Modi appointed Chairman of Air India and Indian Airlines. 10. OIC drops Pakistan's resolution on Kashmir; K.V. Puttappa, known as 'Kuvempu' one of the last titan of Kannada literature, 90 passes away. 11. The Supreme Court stays Karnataka reservation Act. 16. Election Commissioner indicts Union Minister Sitaram Kesari and Kalpana Rai for violation of the model code of conduct for election. 17. 65% vote in Goa and Sikkim assembly polls. Punjabi poet Dr. Harbhajan Singh wins Saraswati Samman for 1994; North Eastern Council decides to include Sikkim in the Council. 18. Army Chief Gen. Bipin Chandra Joshi, 54, dies of heart attack. 19. Miss India Aishwarya Rai selected Miss World in the contest held in Sun City, South Africa; Lt. Gen. Shankar Roy Choudhury appointed Army Chief; The decadal exposition of the relic of St. Francis Xavier begins in the Bor Jesus Basilica in Panaji. 21. Lt. Gen. Shankar Roy Choudhury GOC-in-C Army Training Command takes over charge as the Army Chief—following the death of Gen. B.C. Joshi; Noted economist and educationist Dr. Malchom Adisesiah, 83, expires; Senior engineer D. Sasi Kumar and businessman Chandrasekharan arrested in espionage charge involves Maldivian national Mariam Rasheeda and her associate Ms Fouz Hussain. 23. Over 110 tribals killed in stampede in front of Maharashtra Legislative Assembly Nagpur. 24. Judicial probe into stampede Nagpur; Tribal Development Minister Madhukarrao Pichad resigns. 25. Five youths killed in police firing in Koothuparamba Kannur district of Kerala. 26. Sixty five per cent cast their votes in Karnataka Assembly election. 29. Former Chief Justice of India M.H. Karim made Chairman of the 14th Law Commission.

0. Mrs. Lakshmi Menon, 94, Former Union Minister of State for External Affairs, dies.

December 1. Assembly elections in Andhra Pradesh and Karnataka. 5. Former PM V.P. Singh resigns from the Parliament. 11. In Karnataka, Janata Dal leader Mr. H.D. Devgowda assumes office as Chief Minister. 12. In Andhra Pradesh TDP leader, Mr. N.T. Rama Rao and in Sikkim Mr. Jagan Kumar Chamling, leader of Sikkim Democratic Front takes oath of office; Mr. Rishang Keishing of Manipur sworn in as Chief Minister;

Liquor banned in AP by NT Rama Rao. 16. Mr. Pratap Singh Rane (Cong-I) takes office. 19. Central Civil Supplies Minister Mr. A.K. Antony resigns following Gyan Prakash Committee's charges against him. 22. Central Ministers Kalpana Rai, B. Sankaranand and Rameshwar Thakur resigns; Sunil Gavaskar takes oath of office as the Sheriff of Bombay. 24. Human Resource Development Minister Mr. Arjun Singh resigns. 25. Former President Mr. Giani Zail Singh (78) dies.

The Constitution

The Constitution of India came into effect on 26th January 1950. It was drawn up by a Constituent Assembly initially summoned on Dec. 9, 1946. The constitution was adopted on November 26, 1949.

The Constituent Assembly was initially summoned for undivided India. With the partition of India in June 1947, the delegates of the Pakistan areas ceased to be members of the Assembly. On August 14, 1947, the Constituent Assembly met again as the Sovereign Constituent Assembly for the Dominion of India under the presidency of Sachidananda Sinha. On the demise of Sinha, Dr. Rajendra Prasad became the President of the Assembly. A draft Constitution was published in February 1948. The Constitution was finally adopted on 16th Nov 1949. It came into effect on 26th Jan 1950.

The Indian Constitution closely follows the British Parliamentary model but differs from it in one important respect that is, the Constitution is supreme, not the Parliament. So the Indian courts are vested with the authority to adjudicate on the constitutionality of any law passed by the Parliament.

The Constitution consists of the following:

1. The Preamble.
2. Parts I to XXII covering Articles 1 to 395.
3. Schedules 1 to 12 and
4. An Appendix. Part IX-The panchayats and Schedule XI (Article 243-G) have been newly incorporated under 73rd Constitution Amendment Act, 1992.

The Preamble "We, the people of India, having solemnly resolved to constitute India into a Sovereign Socialist Secular Democratic Republic and to secure to all its citizens:

- Justice, social, economic and political;
- Liberty of thought, expression, belief, faith and worship;
- Equality of status and of opportunity; and to promote among them all

Fraternity assuring the dignity of the individual and the unity and integrity of the Nation; in our constituent assembly this twenty-sixth day of November, 1949, do hereby adopt, enact and give to ourselves this Constitution."

The words *sovereign, socialist, secular* and *the unity and the integrity of the nation*, were added by the Constitution (42nd Amendment) Act, 1976.

Part I. The Union and its Territory 1. Name and territory of the Union. (a) India, that is Bharat, shall be a Union of States (Art. 1). (b) The States and Territories thereof shall be as specified in the first Schedule (Art. 2). (c) The territories of India shall comprise—(c.i). the territories of the States; (c.ii). the Union Territories; (c.iii). such other territories as may be acquired. 2. Admission or establishment of new states. 3. Formation of new states and alteration of areas, boundaries or names of existing states.

Distribution of Powers The Union has exclusive power to make laws on all matters in List I of the Seventh Schedule (Union List). The States have exclusive power to make laws on all matters in List II (State List). The Union and States have concurrent powers to legislate on any matter enumerated in List III (Concurrent List) (Art. 246).

Residuary Powers The Union has exclusive power to make laws on any matter not enumerated in the Concurrent List or State List (Art. 248).

Over-riding Powers In case of any conflict between Union laws and State laws, the Union laws shall prevail (Art. 254).

Part II. Citizenship Citizenship rights are given to every person who is born in India or either of whose parents was born in India or who has been a resident of India for 5 years, immediately preceding the commencement of the Constitution.

The Constitution of India commenced on the 26th January 1950.

Part III. Fundamental Rights are granted to citizens under Arts. 12 to 35 of the Constitution. They are:

1. Right to Equality — before law; on the ground of religion, race, caste, sex, or place of birth; employment; abolition of untouchability and titles.

2. Right to Freedom — speech and expression; assemble peaceably and without arms; to form associations or unions; to move freely throughout the territory of India; to reside and settle in any part of India; to practice any profession or to carry on any occupation, trade or business; protection in respect of conviction for offences; protection of life and personal liberty; protection against arrest and detention in certain cases.

Article 32 (1) allows to move Supreme Court for enforcement of the rights conferred by this part, is guaranteed. 32 (2) allows moving the Supreme Court to issue direction or orders or writs in the nature of *Habeas corpus*, *Mandamus*, *Certiorari* and *Quo warrant*. *Habeas corpus* is an order calling on person who has detained another to produce the latter before the court in order to let the Court know on what ground he has been confined and to set him free if there is no legal justification for the imprisonment. *Mandamus* commands a person to whom it is addressed to perform some public or quasi-public legal duty which he has refused to perform and the performance of which cannot be enforced by any other adequate legal remedy. *Certiorari* is an order issued against court or tribunal to quash their decision—intended to secure the jurisdiction of an inferior court/tribunal is properly exercised. *Quo warrant* is a proceeding whereby the court enquires into the legality of the claim which a party asserts to a public office, and to oust him from its enjoyment if the claim be not well founded.

3. Right Against Exploitation — prohibition of traffic in human beings and forced labour; prohibition of employment of children in factories etc.

4. Right to Freedom of Religion — conscience and free profession practice and propagation of religion; manage religious affairs; payment of taxes for promotion of any particular religion; attendance at religious instructions or religious worship in certain educational institutions.

5. Cultural and Educational Rights — protection of interests of minorities; minorities to establish and administer educational institutions

6. Right to Constitutional Remedies — remedies for enforcement of rights conferred by this Part., that is to say, all citizens are guaranteed the right to move the Supreme Court or the High Courts by appropriate proceedings for the en-

forcement of Fundamental Rights.

The 16th and 24th Amendments have considerably limited the exercise of Fundamental Rights.

Part IV. The Directive Principles of State Policy are contained in Arts. 36 to 51 of the Constitution (Part IV). These lay down 19 objectives. Directive Principles of State Policy enjoin the State to undertake within its means, a number of welfare measures. These are intended to assure citizens an adequate means of livelihood, raise the standard of living, improve public health, provide free and compulsory education for children, and assure that the operation of the economic system does not result in the concentration of wealth and means of production to the detriment of the common good. These are not enforceable at law like Fundamental Rights. Nevertheless, they are declared fundamental to the governance of the country.

Fundamental Duties The 42nd Amendment Act (1976) has incorporated into the Constitution a new chapter on Fundamental Duties under Part IV-A and Article 51-A.

The Duties for an Indian citizen enshrined include:

a) to abide by the Constitution and respect its ideals and institutions, the National Flag and National Anthem;

b) to cherish and follow the noble ideals which inspired our freedom struggle;

c) to uphold the sovereignty, unity and integrity of India;

d) to render national service when called for;

e) to promote harmony and spirit of common brotherhood amongst all Indians; and renounce practices derogatory to the dignity of women;

f) to preserve the rich heritage of our composite culture;

g) to protect and improve the natural environment including forests, lakes, and wild life and to have compassion for living creatures;

h) to develop the scientific temper, humanism and the spirit of enquiry and reform;

i) to safeguard public property and to abjure violence;

j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

Part V. The Union Chapter 1. **The Executive** There shall be a **President of India** (Art. 52) who is the Executive Head of State—[Art. 53(1)]—and the Supreme Commander of the Armed forces (Art. 53(2)).

The President shall be elected from an electoral college consisting of (a) the elected members of both Houses of Parliament and (b) the

Panchayati Raj

The Constitution (73rd Amendment) Act came into force on April 24, 1993. It provides for three-tier system for all States/UTs, except those having a population of less than 20 lakhs.

Part IX The Panchayats

Article 243. Definitions.

Article 243A. Gram Sabha.

Article 243B. Constitution of Panchayats.

Article 243C. Composition of Panchayats.

Article 243D. Reservation of seats.

Article 243E. Duration of Panchayats etc.

Article 243F. Disqualification of membership

Article 243G. Powers, authority and responsibilities of Panchayats.

Article 243H. Powers to impose taxes by, and funds of, the Panchayats.

Article 243I. Constitution of Finance

Commission to review financial position.

Article 243J. Audit of accounts of Panchayats

Article 243K. Elections to the Panchayats.

Article 243L. Application to Union territories.

Article 243M. Part not to apply to certain areas.

Scheduled areas referred to in clause (1), and the tribal areas referred to clause (2), of Art. 244.

States of Nagaland and Mizoram, Manipur where District Councils exist under any law in force, Darjeeling Gorkha Hill Council etc.

Article 243O. Bar to interference by courts in electoral matters; Amendment of article 280; Addition of Eleventh Schedule.

Eleventh Schedule (243G)

(a) Agriculture, including agricultural extension
(b) Land improvement, implementation of land reforms, land consolidation and soil conservation. (c) Minor irrigation, water management and watershed development, (d) Animal husbandry, dairying and poultry, (e) Fisheries, (f) Social forestry and farm forestry, (g) Minor forest produce, (h) Small scale industries, including food processing, (i) Khadi, Village and cottage industries, (j) Rural housing, (k) Drinking water, (l) Fuel and fodder, (m) Road, culverts, bridges, ferries, waterways and other means of communication, (n) Rural electrification and non-conventional energy source, (o) Poverty alleviation programme, (p) Education, adult and non-formal education, technical training and vocational training, (q) Libraries and cultural activities, (r) Markets and fairs, (s) Health and sanitation including hospitals, (t) Family planning, Women and child welfare, (u) Social welfare including handicapped, (v) Welfare of weaker section, (w) PDS, (x) Maintenance of community assets.

elected members of the Legislative Assemblies of the States (Art. 54). The President shall hold office for five years Art. 56(1) and is eligible for reelection (Art. 57).

The Vice-President shall be elected by the members of an electoral college consisting of the members of both houses of Parliament (Art. 66(1)). The Vice-President may hold office for five years (Art. 67), and shall be the ex-officio Chairman of the Council of States (Art. 64).

There shall be a **Council of Ministers** with the Prime Minister at the head to aid and advise the President in the exercise of his functions—[Art. 74(1)]. The Prime Minister shall be appointed by the President, and the other Ministers shall be appointed by the President, on the advice of the Prime Minister—Art. 75(1). The Ministers shall hold office during the pleasure of the President—Art. 75(2).

The Council of Ministers (as at present constituted) consists of the Prime Minister and (1) Ministers who are members of the cabinet, (2) Ministers of State (Union Ministers) who are not members of the cabinet and (3) Deputy Ministers.

A Secretary to Government is the *administrative head* of a ministry and the principal adviser of the minister. When the volume of work in a ministry exceeds the manageable charge of the Secretary, one or more wings may be established under a Joint Secretary. A ministry is divided into divisions, branches and sections functioning under Deputy Secretaries, Under Secretaries and Section Officers respectively.

Chapter II. There shall be a **Parliament** for the Union, which shall consist of the President and two Houses, the Council of States (Rajya Sabha) and the House of the People (Lok Sabha)—Article 79.

The Council of States shall consist of not more than 238 elected representatives of States and Union Territories and 12 members to be nominated by the President (Art. 80). The House of the People shall consist of not more than 500 members chosen by direct election from territorial constituencies in States and not more than 25 members to represent Union Territories (Art. 81).

The Council of States shall not be subject to dissolution but as nearly as possible one-third of its members shall retire, as soon as may be, after the expiry of 2 years. The House of the People shall continue for 5 years (unless sooner dissolved) from the date of its meeting and no longer and the expiry of the said period of five years shall operate as dissolution of the House (Art. 83). This mandatory provision of dissolution may be extended for a year due to emergency.

The following **Committees** are appointed to assist the Parliament in its deliberations: 1. Public Accounts Committee, 2. Estimate Committee, 3. Public Undertakings Committee, 4. Committee on Government Assurances.

In a presidential system of government like that of the USA, the three branches of government—the Legislature, the Executive and the Judiciary—are independent units. But in a Parliamentary system like that of India the Executive is subordinate to the Legislature. The Judiciary alone functions as an independent branch.

Chapter IV Part IV of the Constitution deals with judiciary. There shall be a **Supreme Court of India**, consisting of a Chief Justice of India and other judges: Art. 124(1). The parliament has the power to increase the number of judges.

A judge of the Supreme Court is to be appointed by the President after consultation with the Chief Justice of the Supreme Court and shall hold office until the age of sixty-five and can be removed from office by the President, only after an address by each house of Parliament supported by more than two-thirds majority of members present and voting.

The Supreme Court has both original and appellate jurisdiction. The original jurisdiction is limited to questions between the Government of India and the States, or between the States inter se and to such other questions which involve the existence or the extent of a legal right (Art. 131). The Appellate Jurisdiction extends over all the High Courts in India (Art. 132).

The Attorney General The President shall appoint a person who is qualified to be appointed as a judge of the Supreme Court, to advise the Government of India on legal matters (Art. 76). He has the right to speak and take part in the proceedings of either House and to be a member of any Parliamentary Committee but is not entitled to vote (Art. 88).

There shall be a **Comptroller and Auditor General of India** who shall be appointed by the President. He shall only be removed from office in like manner and on the like grounds as a Judge of the Supreme Court (Art. 148)(1). He exercises a general control over the accounts of the Union and State Governments (Art. 149). He is not eligible for further office either of the Union or State governments, once he has retired [Art. 148(4)].

Election Commission is to supervise and control all matters relating to elections to the Parliament and State Assemblies and to the office of the President and Vice-President (Art. 324). The Election Commission may consist of the Chief Election Commissioner and such other Election Commissioners as the President may appoint from time to time. When any other Election Commissioner is appointed, the Chief Election Commissioner shall function as the

Chairman of the Election Commission. The Chief Election Commissioner cannot be removed from office except in the same manner and on the same grounds as a judge of the Supreme Court (Art. 324).

The Governor of a State is the Executive head of the State government (Arts. 155 and 156). He is assisted by a Council of Ministers, with the Chief Minister at the head (Art. 163). The Chief Minister is to be appointed by the Governor and other Ministers are to be appointed on the advice of the Chief Minister.

The Legislature of a State shall consist of the Governor and one or two houses of legislature as the case may be (Art. 168).

The Legislative Assembly of a State may consist of not more than 500 and not less than 60 members (Art. 170). The total number of members in the Legislative Council, if any, shall not exceed one-third of the total number of members in the Assembly (Art. 171).

There shall be a High Court for each State consisting of a Chief Justice and such other judges as the President may appoint (Arts. 213 and 216). A judge of the High Court can be removed from office by the President, in the same manner as he may remove a judge of the Supreme Court (Art. 217). The High Courts have original jurisdiction in such matters as well as appellate jurisdiction over all subordinate courts in their jurisdiction.

Every state shall have an **Advocate General** to advise the Government on legal matters (Art. 165).

The **Union Territories** ordinarily have a Council of Ministers or legislatures of their own. But the Parliament may *by law* create for any of the Union Territories a body, whether elected wholly or partly elected and partly nominated to function as a legislature for the Union Territory or a Council of Ministers or both (Art. 239A).

Article 343 of the Constitution provides that the official language of the Union shall be Hindi in the Devanagari script and the form of numerals for official purposes, shall be the international form of Indian numerals. English, which was originally to continue as the official language only upto Jan. 26, 1965, will under the Official Languages Act, 1963 continue to be used in addition to Hindi.

Art. 368 deals with **Amendment of the Constitution**. A Bill for Amendment must be passed in each House by a majority of the total membership of that House and by a majority of not less than two-thirds of the members present and voting.

Amendments to certain parts of the Constitution, however, require ratification of the Legislatures of not less than one-half of the States or resolutions to that effect.

There are **Twelve Schedules** to the constitution. The ninth schedule was added by the First Amendment to the constitution in 1951 and the 11th and 12th by the 73rd and 74th Amendment in 1992.

With respect to Article 40 a new Part IX relating to the Panchayats has been inserted in the constitution to provide for among other things, Gram Sabhain a village or group of villages; constitution of panchayats at village and other levels; direct elections to all seats in panchayat at the village and intermediate level, and to the offices of Chairpersons of the panchayat at such levels; reservation of seats for SC & ST in proportion of their population for membership of panchayat and office of Chairpersons in panchayat at each levels; reservation of one-third seats for women; fixing tenure of 5 years for panchayats and holding election within a period of 6 months in the event of expiration of any panchayat.

In order to remove the inadequacies in the implementation and effectiveness in the Urban Local Bodies a new Part IX-A relating to the Municipalities has been incorporated in the constitution to provide for among other things, constitution of three type Municipalities, i.e., Nagar Panchayats for areas in transition from a rural area, Municipal Councils for smaller urban areas and Municipal Corporation for larger urban areas.

First Schedule (under Articles 1 and 4) gives list of the States and Territories comprising the Union.

States 1. Andhra Pradesh, 2. Assam, 3. Bihar, 4. Gujarat, 5. Kerala, 6. Madhya Pradesh, 7. Tamil Nadu, 8. Maharashtra, 9. Karnataka, 10. West Bengal, 11. Punjab, 12. Rajasthan, 13. Uttar Pradesh, 14. West Bengal, 15. Jammu and Kashmir, 16. Nagaland, 17. Haryana, 18. Himachal Pradesh, 19. Manipur, 20. Tripura, 21. Meghalaya, 22. Sikkim, 23. Arunachal Pradesh, 24. Mizoram, 25. Goa.

Union Territories 1. Delhi, 2. Andaman and Nicobar Islands, 3. Laccadive, Minicoy and Pondicherry, 4. Dadra and Nagar Haveli, 5. Chandigarh.

Second Schedule (under Arts. 59(3), 65(3), 105(3), 173(3), 183(3)) consists of 5 parts, A to E.

Part A fixes the remuneration and emoluments payable to the President and Governors. **Part B** has been deleted by the Constitution (42nd Amendment) Act of 1976. **Part C** contains provisions as to the Speaker and the Deputy Speaker of the House of the People and the Chairman and the Deputy Chairman of the Council of States and the Speaker of the Legislative Assembly and the Chairman and the Deputy Chairman of the Legislative Council.

Part D contains provisions as to emoluments of the judges of the Supreme Court and of the High Courts. **Part E** contains provisions as to the Comptroller and Auditor General of India. Salary: Rs.9,000 per month. (The salaries have been revised since by Amendments to the Constitution).

Third Schedule (under Arts. 75(4), 99, 124(6), 148(2), 164(3), 188 and 219) contains forms of *Oaths and Affirmations*.

Fourth Schedule (under Arts. 4(1) and (2)) allocates seats for each State and Union Territory, in the Council of States.

Fifth Schedule (under Art. 244(1)) provides for the administration and control of Scheduled Areas. This schedule provides for amendment by a simple majority of Parliament and takes it out of the ambit of Art. 368 (Amendment of the Constitution).

Sixth Schedule (under Arts. 214(2) and 275(1)) provides for the administration of Tribal Areas in Assam, Meghalaya and Mizoram. This is a lengthy schedule which goes into the details of the administration in the Tribal Areas concerned. This schedule can also be amended by a simple majority of the Parliament.

Seventh Schedule (under Art. 246) gives three Lists: 1. **Union List** contains 97 subjects in which the Union government has exclusive authority. 2. **State List** contains 66 subjects which are under the exclusive authority of State governments. 3. **Concurrent List** contains 47 subjects, where the Union and States have concurrent powers.

Eighth Schedule (under Arts. 344(1) and 351(1)) gives a list of 15 languages recognized by the Constitution: 1. Assamese, 2. Bengali, 3. Gujarati, 4. Hindi, 5. Kannada, 6. Kashmiri, 7. Malayalam, 8. Marathi, 9. Oriya, 10. Punjabi, 11. Sanskrit, 12. Sindhi, 13. Tamil, 14. Telugu, 15. Urdu.

Ninth Schedule (under Art. 31(B)) was added by the Constitution (First Amendment) Act 1951. It contains Acts and orders relating to land tenures, land tax, railways, industries, etc., passed by the State governments, and the Union government which are beyond the jurisdiction of civil courts.

Tenth Schedule (under Articles 101, 102, 191 and 192). It contains the Anti-defection Act.

Eleventh Schedule (under Article 243 G) mentions functional areas or subjects that are necessary for implementation of schemes for economic development and social justice in each Panchayat. To mention a few-agriculture, social forestry, small scale industry, roads, rural housing, PDS, education, health & sanitation, poverty-alleviation, non-conventional energy sources, etc.

Twelfth Schedule mentions three types of municipal committees—nagar panchayats for transitional area municipal council for smaller urban areas and municipal corporation for large urban areas.

The Amendments

One of the peculiar features of the Indian Constitution is that various parts of it call for various processes of amendments.

The methods of amendment are three, according to the subject matter of the Article concerned. 1) Articles that may be amended by a simple majority of Parliament. These are mainly matters of detail like those provided in the Schedules. 2) Articles that may be amended by a two-thirds majority of both houses of Parliament. These are comparatively important matters. 3) Articles that require not only a two-thirds majority of Parliament but also ratification by at least one-half of the State Legislatures.

Articles of the third category are specifically mentioned. They are the following: Articles concerning the election of the President (Arts. 54 & 55), the powers of the Union Cabinet (Art. 73), the powers of State Cabinets (Art. 162), the High Courts in Union Territories (Art. 241), the establishment of the Supreme Court (Ch. IV, Part V), Constitution and powers of the High Courts (Ch. V, Part VI), Relations between the Union & State Legislatures (Ch. 1, Part XI), the Lists Union List, State List and Concurrent List in the Seventh Schedule, the representation of States in Parliament and the provisions of Article 368 itself (Part XX).

Article 368 (Part XX) lays down the general procedure for Amendments. But Articles that require only a simple majority in Parliament do not fall in this category. Such Articles are indicated by a special clause attached to each of them which specifically excludes the operation of Art. 368 (see Art. 21, Sixth Schedule). Amendment of all other Articles comes within the scope of Art. 368.

1. (1950) This amendment has permitted reasonable restrictions to be imposed by law on the exercise of the right of freedom of speech and expression in the interest of friendly relations with foreign States, or public order.

2. (1952) Amended Article 81 with a view to readjusting the scale of representation in the House of the People, necessitated by the completion of the 1951 census.

3. (1954) Substituted entry 33 of the Concurrent List in the 7th Schedule by a new one including foodstuffs, cattle fodder, raw cotton and jute as additional items whose production and supply can be controlled by the Central Govt. if found expedient in the public interest.

4. (1955) The Amendment provides that where the State compulsorily acquires private property for a public purpose, the scale of compensation prescribed by the authorizing legislation could not be called in question in a court.

5. (1955) Empowers the President to fix a time limit for State Legislatures to express their views on proposed central laws affecting the area and boundaries etc. of their respective states.

6. (1956) Added a new entry to the Union List in the Seventh Schedule relating to taxes on the sale and purchase of goods in the course of Inter-State transactions.

7. (1956) It was passed for the reorganization of the States. It involved not only the establishment of new States and alterations in State boundaries but also the abolition of the three categories of the States and the classification of certain areas as Union Territories.

8. (1960) Extended the special provision relating to reservation of seats for the Scheduled Tribes and representation of Anglo-Indians in the House of the People and Legislative Assemblies of States, for a further period of ten years from Jan. 26, 1960.

9. (1960) Amended the first Schedule to the Constitution in order to give effect to the transfer of certain territories to Pakistan in pursuance of the agreements entered into between the Government of India and Pakistan in Sept. 1958.

10. (1961) Incorporated former Portuguese enclaves of Dadra and Nagar Haveli within India and provided for their administration by the President.

11. (1961) Obviated the necessity of a joint meeting of the two Houses of Parliament for forming them into an electoral college for the election of Vice-President. It also amended Art. 71 so as to make it clear that the election of the President or the Vice-President shall not be challenged on the ground of any vacancy, whatever reason, in the appropriate electoral college.

12. (1962) The twelfth amendment was passed to include the territories of Goa, Daman and Diu as a Union Territory in the First Schedule to the Constitution and to empower the President to make regulations for the peace, progress and good government of these areas.

13. (1962) Created Nagaland as the sixteenth State in the Indian Union.

14. (1962) Conferred necessary legislative powers on Parliament to enact laws for the creation of Legislature and Council of Ministers in Union Territories. Former French establishments of Pondicherry, Karaikal, Mahe and Yanam were specified in the Constitution as the Union Territory of Pondicherry.

15. (1963) Empowers the President of India, in consultation with the Chief Justice of India to make final decisions on the dispute about a High Court Judge's age. It also shortened the procedure for disciplinary action against State employees.

16. (1963) Empowered the State to enact any legislation, imposing reasonable restrictions on the exercise of fundamental rights by citizens, so as to protect the sovereignty and integrity of India.

17. (1964) Provided that if the State acquires land which is under the personal cultivation of the owner and within the ceiling limit, compensation has to be paid at the market value of the property so acquired.

18. (1966) Provided for the linguistic reorganization of the Punjab into a Punjabi-speaking State called Punjab and a Hindi-speaking State called Haryana.

It further provided that the word 'state' in cls. (a) to (e) of Art. 3 includes a Union Territory and clarified that Parliament had the power to form a new State or Union Territory by combining any part of a State or Union Territory with any part of any other State or Territory.

19. (1966) Clarifies the duties of the Election Commission.

20. (1966) Validated the appointment of certain District Judges, irregularly appointed.

21. (1967) Provided for the inclusion of Sindhi language in the Eighth Schedule to the Constitution.

22. (1969) Empowered Parliament to carve a new State (Meghalaya) out of Assam.

23. (1969) Provided for the extension of the reservation of seats for Scheduled Castes and Tribes and the nomination of members of the Anglo-Indian community for another 10 years.

24. (1971) Affirmed the Parliament's power to amend any part of the Constitution, including Fundamental Rights by amending Articles 368 and 13 of the Constitution. This neutralized the decision in Golaknath case.

A peculiar feature of the Amendment was that the President was bound to give his assent to amending Acts, when they were presented to him, thus making Presidential assent an automatic act.

25. (1971) Barred the jurisdiction of courts over acquisition laws in regard to the adequacy of the amount paid in lieu of take-over. The word 'compensation' in the case of take-over was deleted and the word 'amount' substituted.

26. (1971) This Amendment withdrew the recognition given to former rulers of Princely States and abolished the privy purses granted to them.

27. (1971) Under this Amendment two new Union Territories, Mizoram and Arunachal

Pradesh, were set up.

28. (1972) The Amendment deleted Article 314 of the Constitution, which gave protection to the ICS officers' conditions of service and privileges.

29. (1972) This Amendment included the Kerala Land Reforms (Amendment) Act, 1969 and the Kerala Land Reforms (Amendment) Act, 1971, in the Ninth Schedule to the Constitution so as to protect these Acts from judicial review.

30. (1972) This Amendment curtailed the number of appeals to the Supreme Court. Formerly appeals to the Supreme Court were decided on the basis of the valuation of the subject matter. The Amendment made only such cases which involve a substantial question of law, appealable to the Supreme Court.

31. (1973) Increased the upper limit of elective seats in the Lok Sabha from 525 to 545.

32. (1973) Implemented the 6-point programme for Andhra Pradesh.

33. (1974) Invalidated the acceptance of resignations by members of the State Legislatures and Parliament, which were made under duress or coercion, or any other kind of involuntary resignations.

34. (1974) Provided constitutional protection to 20 land reform acts passed by the various States, by including them in the 9th Schedule to the Constitution.

35. (1974) Provided for Associate State status to Sikkim.

36. (1975) Made Sikkim a State of the Indian Union the 22nd State.

37. (1975) Provided for a Legislative Assembly and a Council of Ministers for the Union Territory of Arunachal Pradesh.

38. (1975) Declaration of Emergency by the President and the promulgation of Ordinances by the President, Governors, and Administrative Heads of Union Territories were made non-justiciable (beyond the purview of the judiciary).

39. (1975) This Amendment placed the election of the President, Vice-President, Prime Minister and the Speaker beyond judicial scrutiny.

40. (1976) Amended Art. 297 and declared that all land, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf or the exclusive economic zone of India shall vest in the Union and shall be held for the purpose of the Union.

41. (1976) raised the retiring age of State Public Service Commission members from 60 to 62. This does not affect the members of the Union Public Service Commission who retire at the age of 65.

42. (1976) The main features of the Amending Act may be summarized as follows:

a) The Preamble has been altered from sov-

foreign democratic republic to sovereign socialist, secular, democratic, republic and unity of the nation into unity and integrity of the nation.

b) The Directive Principles of the Constitution have been given precedence over Fundamental Rights, wherever they came into conflict.

c) Similarly prevention or prohibition of anti-national activities takes precedence over Fundamental Rights.

d) Certain Fundamental Duties are laid down which have to be observed by all citizens. Non-compliance with or refusal to observe the duties shall be punishable by law. No court shall question the validity of such actions.

e) Number of seats in the Lok Sabha and the State Assemblies which are based on population shall remain frozen as in the 1971 census till 2001 A.D., that is to say, for 2 more Decennial Censuses.

f) The duration of the Lok Sabha and the State Assemblies is increased from 5 to 6 years.

g) The quorum for the Lok Sabha and the State Assemblies prescribed in the Constitution has been removed which means that a quorum is no longer a constitutional necessity.

h) The Parliament may decide what offices are offices of profit under the government or what amounts to corrupt practice in disqualifying an elected member from any house of legislature.

i) Rights and privileges of members and committees of legislatures are to be decided by the concerned houses from time to time.

j) Proclamation of Emergency may be made applicable to any part of the country (instead of the whole country). Similarly emergency can be lifted from any part of the country while it remains in force in other parts.

k) The duration of a Presidential proclamation taking over the government of a State shall be one year instead of six months.

l) The Union has the power to deploy armed forces to any State and to delimit cantonment areas in States. The State cannot exercise any power in the disposition of the armed forces or the administration of cantonment areas.

m) No court can question the competence of the Parliament to amend the constitution in any manner.

n) The Supreme Court alone can adjudicate on the validity of any Central law and the High Courts can adjudicate on the validity of the state laws. If the validity of any State law is dependent on the validity of any Central law or vice versa, then the Supreme Court can adjudicate on them. In any case, any decision on constitutional invalidity has to be made by a two-thirds majority of sitting judges where the number is

not less than 5. If the number of judges is less than five the judgement has to be unanimous. It is also provided that the High courts have no power to make an interim order, where it will impede or obstruct any enquiry or action by the Government.

o) The President's liability to act in accordance with the advice of the Council of Ministers has been made practically mandatory.

43 (1977) Which received Presidential assent on April 3, 1978 (i) omits some Articles added by the Forty-second Amendment and (ii) alters other Articles and restores the jurisdiction of Supreme Court and High Courts to review any legislation in States.

44. (1978) makes right to property not a fundamental one, prevents declaration of emergency on account of internal strifes and empowers for declaration of emergency only if there is armed rebellion. It also places restriction on preventive detention.

45. (1980) Extends the safeguards in respect of reservation of seats in Parliament and State Assemblies for Scheduled Castes and Scheduled Tribes as well as for the Anglo-Indians for a period of 10 years.

46. (1982) Tax levied on the consignment of goods in the course of inter-state trade or commerce is assigned to the states.

47. (1984) This amendment is intended to provide for the inclusion of certain land reform Acts in the Ninth Schedule to the Constitution.

48. (1984) This was an amendment to Clause 5(q) article 356 of the Constitution for the continuation of President's rule in Punjab for another year.

49. (1984) The amendment gives constitutional security to the autonomous District Councils functioning in the state of Tripura.

50. (1984) (i) the members of the Forces charged with the protection of property belonging to, or in the charge or possession of the state; or (ii) Persons employed in any bureau or other organization established by the State for purposes of intelligence or counter intelligence; or (iii) Persons employed in, or in connection with, the telecommunication systems set up for the purposes of any Force, bureau or organization were brought within the ambit of Article 33.

51. (1984) Replaces the section dealing with Scheduled Castes and Scheduled Tribes except in tribal areas of Assam, Nagaland, Meghalaya, Arunachal Pradesh and Mizoram with the Scheduled Tribes except the Scheduled Tribes in the autonomous district of Assam in articles 330 and 332.

52. (1985) The amendment effected by a Bill popularly called Anti-Defection Bill, was to curb defection by disqualification. The following are the salient features of the Act:-

(1) A Member of Parliament or State Legislature belonging to any political party shall be disqualified for being a member of that House:

(a) if he has voluntarily given up his membership of such political party; or (b) if he votes or abstains from voting in such House contrary to any direction issued by the political party to which he belongs or by any person or authority authorized by it in this behalf without obtaining in either case, the prior permission of such political party, persons or authority, and such voting or abstention has not been condoned by such political party, person or authority within 15 days from the date of such voting or abstention.

(2) An elected member of House who has been elected as such otherwise than as a candidate set up by any political party shall be disqualified for being a member of the House if he joins any political party after such elections.

(3) A nominated member of a House shall be qualified for being a member of the House if he joins any political party after the expiry of six months from the date on which he takes his seat after complying with the requirements of Articles 99 or, as the case may be, Article 188.

53. (1986) inserted a new article (371-G) conferring full statehood on Mizoram.

54. (1986) Amended part D of the 2nd schedule giving effect to the increases of salaries of the Chief Justice and Judges of Supreme Court and High Courts. An enabling provision for changes in the salaries of judges in future by Parliament by law, was made in Article 125 and 221.

55. (1986) conferred full statehood on Arunachal Pradesh.

56. (1987) sought to make a special provision for the setting up of the new state of Goa. Consequently Daman and Diu were separated from the former to form a Union Territory

57. (1987) Amended Article 332 of the constitution providing for special arrangements with regard to reservation for scheduled tribes in the north-eastern states of Arunachal Pradesh, Nagaland, Mizoram and Meghalaya, until readjustment of seats on the basis of the first census after 2000 AD.

58. (1987) authorized the President to publish an authoritative translation of the Constitution.

59 (1988) empowered the Government to impose emergency in Punjab on the grounds that India's integrity was threatened by internal disturbances.

60 (1988) empowered the State Governments to increase the ceiling on professional tax from Rs. 250 to Rs. 2500 per person per annum.

61. (1989) lowered the voting age from 21 to 18.

62. (1989) provided for the extension by another 10 years of reservation of seats in Parliament and State Assemblies for Scheduled Castes and Tribes and reservation for Anglo Indian community by nomination.

63. (1989) repealed Amendment 359 A empowering government to impose emergency in Punjab.

64. (1990) Sought extension of President's rule in Punjab for another six months.

65 (1990) To set up National Commission for Scheduled Castes and Tribes.

66. (1990) To bring land reforms within the purview of Ninth Schedule of the Constitution.

67. (1990) Extension of the President's rule in Punjab.

68. (1991) Extension of the President's rule in Punjab.

69. (1991) Delhi made National Capital Territory.

70. (1992) Some changes in Amendment No. 69.

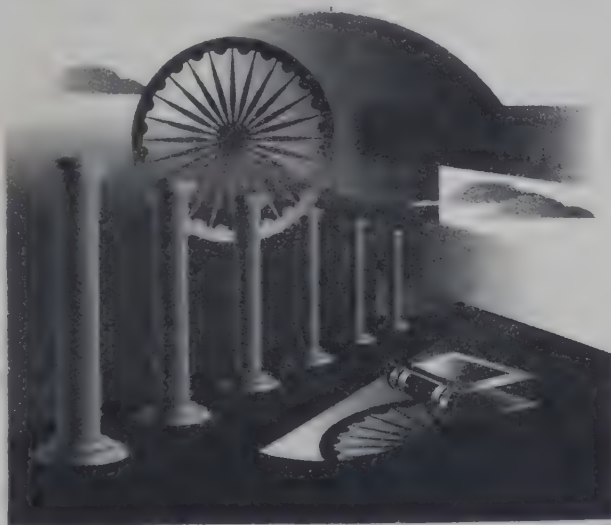
71. (1992) To include Konkani, Manipuri and Nepali in the 8th schedule of the Constitution.

72. (1992) To add a new part for ensuring direct election to all seats in Panchayats for the reservation seats for SCs and STs in proportion to their population and reservation of not less than one third of the seats for women. (became 73rd Amendment Act).

73. (1992) To add new part relating to Urban Local Bodies.

74. (1992) To provide 20 seats reserved for Scheduled Tribes in legislative assembly of Tripura.

75. (1992) To set up State level rent tribunals.



The Economic Scene

On the economic front, the year 1995 was a period marked by very strong trends—with vibrancy in some sectors, and embarrassing developments in the other. The process of liberalisation that began in 1991 did have its impact on all aspects of economic and financial activity. Industrial production and food grains production fared well but as the year drew to a close, there were signs of a crisis, with the dramatic fall in the value of the rupee and tight monetary conditions, accompanied by panic in stock markets.

Liberalisation: Where are we? What are the effects of India's four-year-old economic reforms process?

Official sources say the reforms have yielded tangible results and there are now better opportunities available to farmers for new markets in India and abroad, more employment generation, more business and an allround growth in the economy.

According to P. Chidambaram, Minister of State for Commerce, India's transition from a centrally planned economy to a market economy has been relatively smooth due to the sustained growth at all levels of the economy.

The rupee was made convertible on the current account in April 1994. Today, India produces 190 million tonnes of foodgrains and has over 35 million tonnes of foodgrain stocks. The new trade policy has affirmed its faith in international trade as a driving force of economic activity and promotes not only exports but also imports by bringing down tariffs to internationally comparable levels and gradual abolition of non-tariff barrier.

The new fiscal policy lays stress on control over budget and revenue deficits and lower taxes with better compliance, Mr. Chidambaram said.

The various policy and administrative measures include a predominantly market determined exchange rate policy, drastic reduction in import duties, limiting licensing requirements to just 18 industries on grounds of safety, ecology and strategic considerations, restructuring of chronically loss-making public sector enterprises, overhaul of foreign investment regime and breaking public sector monopoly in areas like power refineries, telecom, airlines, roads, ports, banking and financial services.

Mr. Chidambaram said exports have witnessed a robust growth rate of over 20 per cent

during a three-year period. The gross domestic product itself has grown from a low of one per cent in 1991-92 to 5.3 per cent in 1994-95. The fundamentals of the Indian economy were, therefore, sound, he said.

IMF Study: On the other hand, the International Monetary Fund (IMF) has said that reforms are by no means complete, and India still has a long way to go. Much has been accomplished but persisting obstacles constrain a stronger and broader investment response, the IMF has said in a study. Major economic policy challenges lie ahead.

The overall fiscal deficit needs to be reduced substantially to relieve pressure on domestic savings, despite India's tangible progress on the path towards macroeconomic and structural reform. According to IMF, despite efforts to attract private investment, inadequate infrastructure remains a major problem.

Moreover, little has been done to address distortions in public enterprises, labour markets and the agricultural sector, it says.

It suggests that reforms in these areas "in a steady and transparent fashion" are essential for sustaining rapid growth.

Broadening the reforms to cover agriculture—which employs the bulk of the population—should spread the benefits of reform and help improve income distribution, IMF suggests.

It has also listed policy areas which merit attention. It says tariff rates remain relatively high by international standards, while imports of consumer goods and trade in agricultural commodities continue to be subject to quantitative restrictions.

Several important internal restrictions remain on private sector activity (for example, reserving certain sectors of the economy for small-scale enterprises) which constrain development of the key sectors of the economy. The IMF also noted that "reforms have lagged at the state level".

Financial sector reform has been hampered by limited progress in fiscal conditions. Although the cash reserve requirement and the statutory liquidity ratio have been lowered, the flow of funds from the banking system to the public sector remains significant, it says.

On the positive front, the IMF says the benefits are showing up in robust economic expansion, led by a recovery of private investment and rapid export growth. The external position has also strengthened consider-

ably, while inflation has come down.

The IMF says India's growth record has been disappointing, with per capita income increasing by less than two per cent annually since 1960.

Low rates of return to investment and excessively high capital-labour ratios are two drawbacks.

Trade liberalisation has led to an increasingly open economy—the ratio of exports and non-factor services to GDP rose to more than 23 per cent in the 1980s, it has noted.

New private enterprises have been established in such sectors as banking and other financial services, commercial airlines, and software development, while major investments are moving forward in telecommunications, power, petrochemicals and oil exploration.

During 1994, India accounted for a larger volume of international equity issues than any other emerging market. Substantial progress has been made towards creating a simpler and fairer tax system, IMF says.

Foreign fund inflow The actual inflow of foreign direct investment (FDI) has crossed Rs.9,500 crores since reforms began, according to the latest data compiled by the Industry Ministry. Both the approvals and the actual inflow data also reveal that the services sector is one of the front-runners in attracting the highest quantum of FDI.

These figures pertain to the period from August 1, 1991 to July 31, 1995, popularly referred to as the reform period. The ministry circulates this data among foreign investors visiting India, as well to the Indian embassies for propagating amongst potential investors.

According to this data, the United States of America continues to be the largest investor in industry in India. Statewise investment further reveals that the largest chunk of FDI continues to flow into Maharashtra, despite the Enron episode.

The FDI approvals data for this period show that the fuels and the services sector attract the highest FDI. While the fuels sector attracts 28.48 per cent of the total FDI approvals of Rs. 36,300 crores, the services segment is second on the list inviting FDI to the extent of 7.5 per cent.

In the services sector, financial and banking services account for nearly half the FDI in

terms of approvals.

Against the FDI approvals, the actual inflow since the beginning of reforms till July 31 1995 is Rs. 9,530 crores, an inflow rate of approximately 26 per cent.

Market Forces Meanwhile Finance Minister Manmohan Singh has said that the country would be saddled with an unmanageable foreign debt, if market forces were allowed to dictate everything in that area.

The Finance Minister said at a seminar on investor protection in Bombay that the four-year old economic reforms process could face a serious setback if capital market players did not improve the financial sector.

"The financial sector has to support the growth and diversification of the manufacturing, infrastructure and commercial sectors. Otherwise, the strides being made by these sectors towards greater productivity, quality and competitiveness will receive a setback".

India was feeling the beneficial impact of the reforms in its balance of payments, employment and a rejuvenated banking system, Mr. Singh said. "The financial sector has to deliver what is expected of it in our ongoing process of economic reforms."

"The ultimate savers and investors — the household sector — will have to be drawn in greater numbers to deploy their savings through the capital market," Singh said.

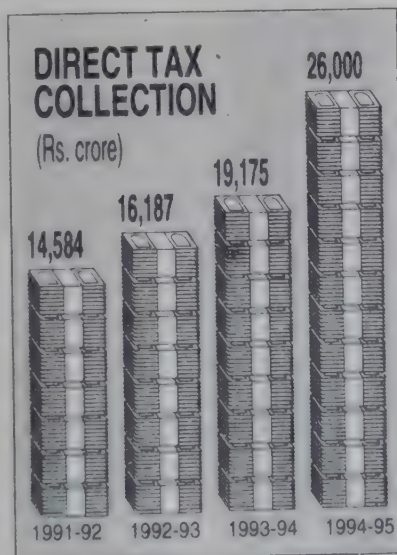
20 million investors India has more than 20 million investors, the second largest in the world, but Singh said efforts must be made to increase this number by offering a combination of new instruments and products offering higher rewards for savings.

"Those who are leaders in today's market operations must assume the responsibility for changing its culture. They have to demonstrate that they can live up to the expectations of millions of investors," Mr. Singh said.

India was resolved to create a financial system which would be characterised by transparency

and easy trading, efficient delivery and settlement system. He reiterated that the depository legislation which is aimed at bringing more transparency on bourses would be introduced shortly.

Direct Taxes In the fifth year of liberalisation, 1994-95, the Central Board of Direct Taxes (CBDT), which collects income and corpo-



Below the poverty line

Number and Percentage of Population below the Poverty line by States

State	1983-84		1987-88	
	Population (Lakh)	Per cent	Population (Lakh)	Per cent
1	2	3	4	5
1. Andhra Pradesh	205.1	36.4	195.7	31.7
2. Assam	49.8	23.5	52.9	22.8
3. Bihar	365.5	49.5	336.4	40.8
4. Gujarat	87.6	24.3	73.3	18.4
5. Haryana	27.7	15.6	18.2	11.6
6. Himachal Pradesh	6.1	13.5	4.5	9.2
7. Jammu & Kashmir	10.3	16.3	9.8	13.9
8. Karnataka	137.6	35.0	136.5	32.1
9. Kerala	71.5	26.8	49.0	17.0
10. Madhya Pradesh	254.9	46.2	224.9	36.7
11. Maharashtra	232.0	34.9	214.1	29.2
12. Manipur	1.9	12.3	◆	◆
13. Meghalaya	4.0	28.0	◆	◆
14. Orissa	118.1	42.8	135.1	44.7
15. Punjab	24.4	13.8	13.9	7.2
16. Rajasthan	126.2	34.3	99.5	24.4
17. Tamil Nadu	200.2	39.6	176.9	32.8
18. Tripura	5.1	23.0	◆	◆
19. Uttar Pradesh	530.6	45.3	448.3	35.1
20. West Bengal	255.1	39.2	173.5	27.6
21. Small states & UTs	32.3	27.1	14.2	7.7
All India	2710.0	37.4	2376.7	29.9

◆ Included in small States/UTs Source: Planning Commission

ration taxes, found that the flow into government kitty has doubled in four years. At the half yearly collection upto September 30, 1995, the income tax and corporation tax collection was Rs. 11,470 crores (plus Rs. 200 crores as interest tax), whereas in 1994 it was only Rs. 8,900 crore. Income tax has shown a higher growth rate of 36% compared to corporation tax which has grown at 27%. The receipts from tax deduction at source (TDS) under income tax have shown a jump of about 75%.

The reasons attributed for higher direct tax collection is general affluence in the society, tax reforms and compliance to the modified and easy regulations.

Forex Reserve India's foreign currency reserve was down by over \$1.40 billion as the

RBI was caught between maintaining the exchange rate of the rupee and easing the liquidity crunch faced by banks. The forex reserves, which stood at \$18.86 billion on October 13, just before RBI started selling dollars to prop up the rupee, declined to \$17.45 billion on November 3. This is sufficient to finance six months' import.

The liquidity crisis, heightened by the RBI's intervention in the foreign exchange market, has forced banks to seek funds in the call money market. Since the RBI began selling its dollar in the forex market from October 16, a few thousand crore rupees have been siphoned out of the banking system.

India's foreign exchange reserves, excluding gold and SDRs, decreased sharply in 1995-96 by

1,797 million and stood at \$ 19,102 million at the end of September 1995. Foreign exchange reserves during 1994-95 was \$ 20,809 million. The first six months of the 1995-96 financial year beginning April to September has seen the rupee dipping and picking up again, only in rupee terms. In April 1995-96, foreign exchange reserves stood at \$20,454 million (Rs. 64,064 crore) which dipped to the lowest of \$ 19,609 million (Rs. 61,613 crore) in June only to pick up in rupee terms to Rs. 64,660 crores. In dollar terms the slide however continued to \$ 19,012 million.

The slow accretion in foreign exchange or the slow slide in reserves is mainly accounted for by increased imports under the liberalised regime.

GDP Update The update on the Gross Domestic Product (GDP) for 1994-95 by the Central Statistical Organisation (CSO) has

brought good news to Indian economy. It is now confirmed by the CSO that the growth rate of the economy in 1994-95 was 6.2% as against the advance estimate of 5.3% which was furnished in February, 1995.

Inflation An increase in inflation rate was forecast by the National Council of Applied Economic Research, in July, 1995.

In its review of the economy (Jan-Mar, 1995), the NCAER said the Government finances ap-



India nearing market economy

Operationally, the Chinese model is not very applicable to the economies of Eastern Europe or the former Soviet Union. These countries have largely rejected the planning model - still an integral part of Chinese development strategy. The country for which the Chinese experience is most relevant is India. Both are highly populous countries with large economies. They began the development process at about the same time and stressed self-reliance. Both relied increasingly on import-substitution policies and ended up with a highly capital-intensive production structure. China changed course in 1979 while India (with modest liberalisation) did not. In many ways, India stood in 1991 where China stood in 1979. India's trade-to-GDP ratio in 1991 was the same as China's in 1979; import and investment controls were rampant, and the domestic currency was overvalued.

Despite these similarities, even for India, the lessons from China are limited. There are a number of reasons of this, apart from the obvious differences in political systems. First, the Chinese approach has been highly interventionist. This approach can be successful — as it has been in China and elsewhere in East Asia — provided the government can implement the "right" interventions. India's experience during the last four decades in this respect has not been encouraging. Second, India's economy is already much closer to being a market economy than China's. For

instance, export targets and foreign exchange contracts, which have helped create a pro-export ethos in China, are neither desirable nor feasible in India. Similarly, the private sector plays a far greater role in India, which has already carried out many reforms that China is still contemplating. For example, in the area of exchange rates, China has a multiple exchange rate system and its exchange market is not organised along the lines of market economies. India has achieved virtual current account convertibility and its foreign exchange market is organised along modern lines.

What, then, can India learn from China?

Creating a liberal, flexible economic environment along the lines of SEZs in China would stimulate greater foreign investment. Beginning with a small number of cities — e.g., Bombay, Bangalore, Cochin, and Madras — as in China, local governments could be given full authority to approve foreign investment up to a certain limit. Most important, rules of entry and exit in the zones could be made more flexible. Because these zones would be introduced in limited areas, the necessary political consensus might be relatively easy to obtain, even if creating them required new legislation. If eventual success in the open zones might pave the way for political consensus on a wider scale.

Source: Finance and Devt, June '95, World Bank and IMF

peared to be off-balance at the end of the first quarter of the new fiscal year.

It said following a good performance of the economy in 1994-95, particularly in the industrial sector, expectations of acceleration of growth were high at the beginning of the new fiscal year. The comfortable fiscal conditions indicated by one of the lowest budget deficits of the Centre appeared to be indicator of changes in Government finances.

The tight monetary conditions resulting from monetary policy measures designed to reduce liquidity to keep inflation in check also reduced the Government's ability to borrow in the market. "While inflation is at present under control, the Government's recourse to RBI credit at a relatively high level signals the possibility of a rise in the inflation rate in the near future."

The Indian Merchants Chamber (IMC) also thinks inflation and fiscal deficits are the two weak spots in the Indian economy. Higher growth of Reserve Bank's net credit to the Central Government is a cause for concern and is likely to exert its impact on monetary growth with some timelag, the IMC President said.

There is some potential, therefore, for the inflation rate which at present is hovering around eight per cent to go up. Unless Government expenditure is controlled interest rates are unlikely to come down. Higher interest rates, in turn will exert their inflationary impact on the economy.

However, the IMC thinks the growth rate of the economy is expected to touch a new peak of 7 per cent from 1996-97.

According to the US-based Crosby Securities, the inflation rates in India will rise to double digits in February 1996 mainly due to large fiscal deficit, caused by excessive Government spending, combined with rapid credit expansion to increase the money supply. Besides, the recent depreciation of the rupee will push the inflation up. Crosby Securities estimate the inflation rate (based on the final value of wholesale price index) will average 10% during the current financial year and will rise over 12% in 1997.

18.7 million unemployed Unemployment in the country as in March 1995 was estimated to be around 18.7 million.

The government expects the unemployment to reduce to 'negligible levels' by the year 2002.

The Planning Commission estimates the incidence of poverty at 37.4 per cent in 1983-84 and 29.9 per cent in 1987-88.

However, the expert group on estimation of proportion and number of poor constituted by the Planning Commission estimated the incidence of poverty in 1983 as 44.8 per cent and in 1987-88 as 39.3 per cent.

Principal Exports, 1993-94

Items	Quantity (000 tonnes)	Value (Rs. crore)
Agricultural and allied products:	—	1302
Coffee	118.5	54
Tea and mate	154.3	1059
Oil cakes	4820.7	2324
Tobacco	104.7	461
Cashew kernels	73.5	1048
Spices	182.4	569
Sugar and molasses	204.5	178
Raw cotton	297.3	654
Rice	767.7	1287
Fish and fish preparations	257.9	2552
Meat and meat preparations	—	245
Fruits, vegetables and pulses (excl. cashew kernels, processed fruits & juices)	—	488
Miscellaneous processed foods (incl. processed fruits and juices)	—	470
Ores and minerals (excl. coal) of which	—	2371
Mica	33.4	28
Iron ore (million tonnes)	26.9	1374
Manufactured goods	—	52702
Textile fabrics & manufactures (excl. carpets hand-made)	—	14863
Cotton yarn, fabrics made-ups etc.	—	4821
Readymade garments of all textile materials	—	8112
Coir yarn and manufactures	—	130
Jute manufacturers incl. twist & yarn	200	389
Leather and leather manufactures	—	4077
Handicrafts (incl. carpets hand-made)	—	14955
Gems and jewellery	—	12533
Chemicals and allied products@	—	5688
Machinery, transport & metal manufacturers including iron and steel*	—	9484
Mineral fuels and lubricants (incl. coal)#	—	1554
Others	—	103
Total	—	69751

@Chemicals and allied products figures relate to "Basic Chemical" and "Plastics and Linoleum products"

* Also includes electronic goods and computer software. # During 1989-90, 1990-91, 1991-92, 1992-93 and 1993-94, Crude oil exports amount to Rs. Nil. Source: DGCI&S.

The number of poor, according to Plan panel has come down from 271 million in 1983-84 to 237.7 million in 1987-88.

According to the Minister of State for Planning and Programme Implementation Giridhar Gomango, the number of poor has come down from 327 million in 1983 to 312.7 million in 1987-88.

Foreign Trade A new pattern of foreign trade emerged in 1994-95 with a satisfactory growth in exports in the latter half of the year following an improvement in industrial production and an increase in imports due to the need for securing larger supplies of raw materials and intermediate products for sustaining the rise in industrial output and exports. There were of course exceptional imports of sugar, cotton and usual imports of edible oils for bridging the gap between demand and availability from indigenous sources. Excluding exceptional imports, export earnings could meet over 96 per cent of the outgo in respect of normal imports.

With total exports at \$26.23 billions and

imports at \$28.25 billions, the deficit was higher at \$2.02 billions. As exports were \$22.17 billions and imports \$23.21 billions in 1993-94 the deficit was lower at 1.04 billions. While the bigger deficit was mainly due to exceptional imports the current account deficit was around one billion on account of higher net invisible receipts.

Brand Promotion Fund A Rs. 120-crore Brand Promotion Fund for exports is to be set up by the government.

This is in the wake of the decision of the World Bank to discontinue a similar fund for India despite its huge success in marketing Indian goods abroad on indirect terms. Failing export market and increased competition from newly developing economies like Thailand and the Koreans have made the Commerce Ministry establish the fund.

A few Indian embassies abroad have largely contributed to the concept of setting up the fund. Further, the export target \$1 billion by the end of the century has also led to Commerce Ministry taking up the issue of marketing In-

State-wise production of foodgrains, 1993-94♦

State	Rice (production in thousand tonnes)	Wheat	Coarse cereals	Total cereals	Total pulses	Total foodgrains
Andhra Pradesh	9487.0	6.7	1939.3	11433.0	609.8	12042.8
Assam	3361.1	100.8	16.1	3478.0	57.0	3535.0
Bihar	6063.3	4323.3	1592.1	11978.7	754.8	12733.5
Gujarat	838.6	928.2	1073.1	3239.9	537.9	3777.8
Haryana	2057.0	7231.0	497.0	9785.0	469.6	10254.6
Himachal Pradesh	101.9	414.9	708.6	1225.4	10.8	1236.2
Jammu & Kashmir	508.8	347.3	509.6	1365.7	18.1	1383.8
Karnataka	3135.6	178.6	4547.9	7862.1	599.6	8461.7
Kerala	961.0	—	6.2	967.2	19.2	986.4
Madhya Pradesh	5822.2	6160.5	3216.9	15199.6	3362.7	18562.3
Maharashtra	2484.4	1055.9	7836.8	11377.1	2013.4	13390.5
Manipur	348.8	—	7.8	356.6	—	356.6
Meghalaya	114.0	6.2	22.5	142.7	2.5	145.2
Nagaland	180.0	1.0	38.0	219.0	10.0	229.0
Orissa	6616.3	5.0	163.4	6784.7	387.4	7172.1
Punjab	7624.0	13341.0	480.1	21445.1	73.6	21518.7
Rajasthan	143.0	3459.5	2373.8	5976.3	1068.7	7045.0
Tamil Nadu	6601.9	—	1568.5	8170.4	397.1	8567.5
Tripura	438.1	9.1	1.7	448.9	6.5	455.4
Uttar Pradesh	10115.3	20797.7	3567.6	34480.6	2488.3	36968.9
West Bengal	11444.4	632.1	186.7	12263.2	178.1	12441.3
Sikkim	20.7	14.1	60.9	95.7	5.5	101.2
Arunachal Pradesh	144.0	8.5	68.2	220.7	5.3	226.0
Goa	137.8	—	3.6	141.4	5.1	146.5
Mizoram	96.7	—	14.2	110.9	10.8	121.7
All India	78972.4	59131.3	30917.8	169021.5	13099.6	182121.1

♦ Provisional Source: Directorate of Economics & Statistics, Department of Agriculture & Cooperation.

Production of Major Crops

Group/Commodity	1992-93	1993-94♦
Foodgrains	179.5	182.1
Cereals	166.6	169.0
Pulses	12.8	13.1
Rice	72.9	79.0
Wheat	57.2	59.1
Jowar	12.8	11.5
Maize	10.0	9.5
Bajra	8.9	5.0
Gram	4.4	4.9
Tur	2.3	2.7
Oilseeds (all)	20.1	21.5
Groundnut	8.6	7.8
Rapeseed and mustard	4.8	5.4
Sugarcane	228.0	227.1
Cotton (bales of 170kg)	11.4	10.7
Jute & Mesta (bales of 180kg)	8.6	8.5
Plantation Crops	NA	NA
Potatoes	15.2	17.6

(in million tonnes) ♦ Provisional. NA: Not available

dian goods abroad seriously.

The fund will be managed by industry and export promotion councils.

Record foodgrain production A record harvest of foodgrain, estimated by Ministry of Agriculture at 189.77 m. tonnes, was the highlight of the year 1994-95.

This was 4.7 million tonnes more than 1993-94 production and exceeded the target of 189 million tonnes set by the Planning Commission for the current year.

The estimate of 189.77 m. tonnes this year showed a growth of 4.2 per cent over the last year. Foodgrain production of 182 m. tonnes in 1993-94 showed a growth rate of 1.4 per cent over the previous year.

The estimated production has overshoot the target in several crops. Rice production is now estimated to be 81.61 million tonnes as against a target of 78.5 million tonnes, showing a growth rate of 3.34 per cent.

The wheat target was at 58.5 million tonnes and production was expected to be 63.01 million tonnes, an increase of 6.5 per cent. India is currently world's third largest wheat producer, after China and USA. India could surpass the USA and become the world's second largest wheat producer in five years, according to the Consultative Group on International Agriculture Research (CGIAR).

Bajra and pulses like urad, moong, masoor, ragi and gram also have registered an increase in production. Pulses have shown a growth rate of 5.95 per cent as against 2.18 per cent last

year. The estimated output of coarse cereals is 31.28 million tonnes, as against 30.92 million tonnes in 1993-94.

Commercial crops like groundnut, rapeseed, mustard, oilseeds and sugarcane are also said to have done well. Sugarcane production, which had dropped from 228.03 million tonnes in 1992-93 to 227.06 million tonnes in 1993-94 is estimated to be 259.38 million tonnes this year, an increase of 14.2 per cent.

Groundnut production target was 8.3 million tonnes for 1994-95 and as per the latest estimates, 8.42 million tonnes were produced. Rapeseed and mustard have been showing a steady increase in the last two years at the rate of 5.9 lakh tonnes per year.

A positive picture of the industrial scenario An industrial growth of around ten per cent is expected during 1995-96 compared to 8.2 per cent in 1994-95, according to Union Minister for Industry Mr. K. Karunakaran, who made the assessment in November, 1995 on the basis of advance information available for some industries.

Since 1991 when the government announced the new economic policy, the industrial growth of the country had been improving steadily.

The new strength gained by industries is reflected in a tremendous growth in exports. At present the industrial sector contributes around 75 per cent to total exports, which are growing at around 20 per cent, with foreign exchange reserves at \$ 20 billion. It may be recalled that foreign exchange reserves had dwindled to around \$ 1.6 billion 1991.

Referring to the profile of foreign investments the country has received so far, Mr. Karunakaran said that more than 60 per cent of the foreign direct investment is in the priority sector and only six per cent goes to the consumer goods sector.

In high investment-intensive infrastructure sectors, the government has taken important policy decisions to promote private investment in these sectors to supplement government efforts, he said. "We expect that the required resources would be generated and we will be able to build up infrastructure to world standards to support our industry," he noted.

Sanction has been accorded to 3,580 joint ventures with foreign companies envisaging an investment of around \$ 12 billion dollars. More than 23,700 domestic investment intentions worth approximately \$ 160 billion have also been filed with the government.

This has not only increased the efficiency of the domestic companies, but also has given them the strength to compete and thrive in international markets, Mr. Karunakaran said.

The Minister allayed fears about a possible

imbalance in the approach to industrialisation. While large industries were promoted, the growth of small and medium enterprises was also crucial to the country's socio-economic transformation. The small enterprise clusters in traditional manufacturing fields like leather, furniture, textiles and readymade garments would provide opportunities for employment growth and poverty alleviation. The Government was fully committed to strengthening this sector, he said.

Analysts observe that there are clear signs of a take-off in Indian industry. Over and above the impressive growth rate achieved in 1994-95, the official index of industrial production recorded an increase of 14.9% in April and 13.5% in May 1995. The growth rate in June and July was also expected to be about 14%.

Buoyancy in domestic production of capital

Index of industrial production

(Base: 1980-81=100)

Industry	1992-93	1993-94*
General Index	218.9	227.8
Mining & quarrying	223.7	229.4
Manufacturing	210.7	218.3
Food products	175.3	160.6
Beverages, tobacco and tobacco products	113.7	137.8
Cotton textiles	150.1	157.6
Jute, hemp & mesta Products	87	103.2
Textile products and apparel @	75.8	73.4
Wood & wood products, furniture and fixtures	190.5	198.8
Paper, paper products and printing	210.9	224.8
Leather and fur products*	187.7	200.1
Rubber, plastic, petroleum & coal products	174.6	176.2
Chemicals	276.9	298.0
Non-metallic mineral products	209.0	216.1
Basic metals and alloy products	168.4	193.7
Metal products++	124.6	126.4
Non-electrical machinery and machine tools++	181.1	188.3
Electrical machinery and appliances++	483.6	430.9
Transport equipment++	200.6	211.0
Other manufacturing	231.3	265.4
Electricity	269.9	289.9

* Provisional. @ Exclude footwear.

+ Excludes repairs. ++ Includes parts

Source Central Statistical Organisation, Index Industrial Production Unit.

Employment in the public sector by industry, 1992

Sector	Persons (in lakhs as on 31 March)
A. By branch	
1. Central Government	34.28
2. State Governments	71.90
3. Quasi-Governments	63.93
4. Local bodies	21.98
Total	192.10
B. By industry	
0. Agriculture, hunting etc.	5.73
1. Mining and quarrying	9.87
2 & 3. Manufacturing	18.61
4. Electricity, gas and water	9.16
5. Construction	11.51
6. Wholesale and retail trade	1.57
7. Transport, Storage & communications	30.64
8. Finance, insurance, real estate etc.	12.14
9. Community, social & personal services	92.87
Total	192.10

Note: Totals in A and B differ due to rounding off.
Source: Ministry of Labour

goods and increase in industrial investment proposals in the first four months of the current financial year also point to the sustained boom in industrial production and growth prospects. Exports have touched 10% of the GDP in 1994-95 which reflect the success of the structural readjustment programme initiated four years ago.

Leading the growth race in industry is the automobile and auto-ancillary sectors. Most of the leading auto players in the world are lining up to start production facilities in India. Eight new car models are expected to hit the Indian roads in the next 20 months. The launching of Mercedes Benz cars recently through a joint venture of Telco and Benz, the only such venture outside Germany, is a bold announcement to the world that India has arrived in the automobile arena.

Energy Against the 30,538 MW target set for additional capacity creation by the end of the Eighth Plan, the Government is not likely to achieve more than 20,730 MW which represents a shortfall of 32%. As a result, the peak shortage of electricity at the all-India level is expected to shoot up to 30%. The major shortfall is in respect of various hydro-electric projects and a few thermal projects both in the Central and State sectors.

Rate of return on capital

States	1992-93 (With Subsidy (%))	1993-94	1994-95 (RE)	1995-96 (AP)
Andhra Pradesh	-0.2	-0.8	-7.1	-11.3
Assam	-43.3	-46.6	-28.0	-17.2
Bihar	-20.0	-12.7	-16.5	-19.1
Delhi (DESU)	-22.3	-23.2	-18.6	-16.5
Gujarat	3.4	2.7	-16.6	-13.8
Haryana	-23.8	-27.0	5.5	-9.1
Himachal Pradesh	-13.0	-11.4	-5.9	-1.3
Jammu & Kashmir	-41.8	-50.1	-47.1	-45.7
Karnataka	3.3	3.0	3.0	3.0
Kerala	-4.5	-3.7	-4.0	-4.8
Madhya Pradesh	0.9	-0.5	-4.3	-5.8
Maharashtra	3.1	3.1	2.8	2.2
Meghalaya	-5.3	-1.9	-4.8	-3.5
Orissa	2.6	2.2	2.6	8.7
Punjab	-19.9	-20.5	-26.9	-29.3
Rajasthan	2.9	1.1	-4.1	-13.5
Tamil Nadu	3.2	3.1	-1.0	-9.2
Uttar Pradesh	-16.8	-20.5	18.4	-12.0
West Bengal	-16.6	-13.6	-22.4	-16.5
Average	-6.6	-7.2	-9.6	-10.3

Note: Estimated on the basis of net fixed assets at the beginning of the year.

The major shortfall in the Central sector is mainly in the case of the National Thermal Power Corporation (1,432 MW), Neyveli Lignite Corporation (450 MW), Tehri hydro-electric project (1,000 MW), Ranganadi (405 MW), and Doyang hydro-electric project (75 MW). In the State sector Sardar Sarovar (1,200 MW), Sharavati Tail Race (4 units of 60 MW), Thein Dam (4 units of 150 MW), Maneri II (304 MW), Srinagar (165 MW) and upper Indravati (600 MW).

The delay in projects has been caused by deficiencies in project management, problems related to externally-aided projects, law and order problems and shortage of funds.

Private sector projects such as Pench (429 MW), Khapar Kheda (420), and Chandil (500 MW) have been hampered by a delay in decision-making, it is reported.

Energy loss India's energy distribution and generation are done in the most inefficient way, resulting in transmission losses, and considerable loss in production of energy as well as of the GNP through indirect losses in production of the goods, says D.K. Subramaniam, an authority on alternative energy and renewable sources, at the Indian Institute of Science.

He says India, in comparison with the U.S. uses six times more electricity to produce the same amount of goods which the latter does

and uses 14 times more electricity than Germany, Israel and France to produce as many goods.

By having a simple maintenance of the energy lines and machinery the industries could save ten to 15 % energy and by reducing wastage in lighting and heating nearly 25 % energy could be saved.

If the country did not manage its energy sources efficiently the energy crisis will only deepen and all economic activities will come to a grinding halt, he warns.

Non-conventional energy Wind Power: India's 850 wind turbines generate 200 MW of the 350 MW harnessed from non-conventional energy sources. Wind has the potential to produce upto 20,000 MW annually by the year 2000.

The sudden interest of entrepreneurs in this sector prompted the government to increase its target for wind energy generation in the eighth plan from 100 MW to 500 MW. Proposals for another 1000 MW are pending with the Ministry for non-conventional energy sources. Since manufacturers of wind energy generating equipment are not able to meet the increasing demand, those wanting to start wind farms will have to buy equipment from abroad.

Kanyakumari in Tamil Nadu is all set to become the second largest wind centre in the world.

The sun which can provide several billion megawatts a year is another source. The ocean is yet another storehouse of power. Sources of non-conventional energy include biogas or cogeneration. Mini hydel power projects have the potential to yield 10,000 MW annually.

A number of collaborations with foreign companies have been signed by several state governments and private companies in the renewable energy sector. The 53 deals with American companies alone amount to Rs. 5,200 crore.

Efforts are also being made to tap the tides off the Bay of Bengal. Tamil Nadu government has teamed up with a Japanese power house in a Rs. 750 crore project. A giant 990 MW tidal station is coming up in the Gulf of Kutch. Rajasthan has a scheme, in collaboration with Enron of USA, to produce 150 MW of solar power in Thar desert. In Maharashtra and Tamil Nadu, many sugar mills are being run on power from sugarcane waste.

Non-conventional sources are reported to have a potential of generating energy equivalent to 250 crore tonnes of coal.



Wind turbine: Propelling power

Surveys have shown that coal deposits will last another 150 years at best and gas barely 20. Thermal plants require coal or natural gas. They are known to pollute the environment. Big hydro-electric projects require large ecology-damaging dams and displace thousands of people whereas energy from the sun, wind or small hydel projects is never ending, neither uses up any valuable raw material nor cause inconveniences. The energy produced from non-conventional sources in India may not be much for a country with a large power requirement but that a beginning has been made is a big step.

Electricity shortage Electricity shortage in 1996-97 would be higher than what was assessed at the time of the formation of the Eighth Plan, when it was nine per cent in energy terms.

The shortage was expected to remain at the same level (nine per cent) even after providing for planned capacity addition of 30,538 MW during 1992-97. Since actual capacity addition is likely to be just about half the planned target, the actual energy shortage would be far worse than nine per cent.

This is the view expressed by the Planning Commission in its annual report on the working of State Electricity Boards.

The "unsatisfactory financial health" of the SEBs would be a major drag on the economy, the report says. In the current year only three SEBs are likely to have a positive rate of return on the capital.

The report says that while six SEBs posted a positive rate of return on capital (with subsidy) in 1993-94, the figure was down to four in 1994-95 and is estimated to be reduced to three in the current fiscal. As per the Indian Electricity Supply Act (1948), SEBs are required to have a minimum RoR of three per cent.

The average cost of generation and supply of the SEBs is estimated at Rs. 1.70 per unit in 1995-96, and the average tariff at Rs. 1.40. The report says the SEBs have to raise average tariff by 27 paise to break even and by 33 paise if they are to achieve an RoR of three per cent as mandated in the Electricity Supply Act. This may be a tall order, because even though sales revenue as a ratio of costs has inched upwards since 1992-93, when it was 78.63 per cent, to 81.18 per cent of 1995-96 (AP), the share of agriculture and domestic supply where cost recovery is the least has grown the fastest in recent years.

The report says that in the absence of a "rational tariff structure," "large subsidies are provided to certain sectors, without corresponding recovery from other sectors.

Plans at a glance

Planning in India derives its objectives and social promises from Directive Principles of State Policy enshrined in the Constitution. Planning Commission was set up in 1950 to prepare the blueprint of development, taking an overall view of the needs and resources of the country.

In the past, economic planning envisaged a growing public sector with massive investments in the basic and heavy industries. Now the emphasis on the public sector is less pronounced and the current thinking on planning in the country, in general, is that it should increasingly be of an indicative nature.

First Plan 1951-56. The first Plan with a total outlay of Rs. 2378 crore was a rather haphazard venture, as the Planning Commission had no reliable statistics to work upon. Besides, the plan had to be co-related to the prevailing activities of various government departments. The result was patchwork of isolated projects. All the same, the plan had a national character and was based on a rational hypothesis. It laid emphasis on agriculture, irrigation, power and transport so as to provide an infrastructure for rapid industrial expansion in future. The plan turned out to be more than a success, mainly because it was supported by two good harvests in the last two years.

Second Plan 1956-61. The Second Plan (1956-61) was a big leap forward. It laid special stress on heavy industries. The industrial policy resolution was amended so as to shift the primary responsibility for development on the public sector. Private sector was left to handle consumer industries. But the great quantity of imports that the Plan envisaged in both public and private sectors, practically denuded India's accumulated sterling balances (as much as Rs. 500 crore) in two years and compelled the country to seek extensive foreign aid. Agriculture and small-scale industries remained sluggish, without adding any momentum to development.

Third Plan 1961-66. The Third Plan rode on a wave of high expectations following overall growth of the Indian economy in the first two plan periods. The Third Plan aimed at establishing a self-sustaining economy. Internal resources having been strained to the utmost, the Plan had to rely on heavy foreign aid.

During the Third Plan, national income (revised series) at 1960-61 prices rose by 20 per cent in the first four years but registered a

decline of 5.6 per cent in the last year. Per capita real income in 1965-66 was about the same as it was in 1960-61.

A growing trade deficit and mounting debt obligations led to more and more borrowings from the International Monetary Fund. The rupee was devalued in June, 1966 to little purpose, as it soon turned out. The Third Plan had become stuck.

Interim Planning. The Third Plan having gone awry, planning itself had become discredited in the eyes of many and demands were made from different quarters to declare a Plan holiday. But neither the Government nor the Planning Commission admitted failure. They refused to fall in with the demand for a Plan holiday and proceeded to draw up the Fourth Plan as from 1966-67.

But the economy had so far degenerated that the Fourth Plan could not be started in time, that is to say, in 1966. Instead, as a stop-gap arrangement planning was made annual. The Annual Plans continued from 1966 to 1969 1966-67, 1967-68 and 1968-69.

Fourth Plan 1969-74. The Fourth Plan (1969-74) officially commenced on April 1, 1969 with the publication of the draft plan. *Growth with stability* was the main objective of the Plan. Agriculture was expected to lead the growth with a rate of 5 per cent per annum. Such a growth in agriculture would set up a chain reaction in the economy. The target for the growth rate of industry was set at about nine per cent per annum. Altogether the national income was expected to increase at the rate of 5.5 per cent per annum. Allowing for the increase of population at the rate of about 2.5 per cent, the per capita income was expected to increase at the rate of 3 per cent per annum or about 16 per cent in the Fourth Plan period.

Fifth Plan 1974-79. The Fifth Plan draft as originally drawn up was part of a long term *Perspective Plan* covering a period of 10 years from 1974-75 to 1985-86.

The perspective plan attempted to co-ordinate various sectors of the economy in terms of the new slogan *Garibi Hatao* (Remove Poverty). The long term rate of growth which the economy was expected to achieve on a self-sustaining basis was put up at 6.2 per cent per annum.

By the time the Fifth Plan was approved by the National Development Council (Sept. 1976) its premises had become obsolete and the total

outlay had to be increased from Rs. 37,463 crore to 39,303 crore.

This belated attempt had an inglorious end in another 6 months, when the Janata party came to power. They scrapped it unceremoniously.

The Janata government reconstituted the Planning Commission and announced a new strategy in planning. The strategy involved a change in objective and pattern. The objective was laid down as *Growth for Social Justice* instead of *Growth with Social Justice* a distinction without a difference. The new pattern was the *Rolling Plan* which merely meant that every year the performance of the Plan will be assessed and a new Plan based on such assessment will be made for the next year a continuous planning, in fact. The rolling plan started

with an annual plan for 1978-79 and as a continuation of the terminated V plan.

Sixth Plan (1980-81 1984-85) was formulated after taking into account the achievements and shortcomings of the past three decades of planning. For the Sixth Plan actual expenditure stood at Rs. 109,291.7 crore (current prices) as against the envisaged total public sector outlay of Rs. 97,500 crore (1979-80 prices) accounting for a 12 per cent increase in nominal terms. The average annual growth rate for the Sixth Plan works out to 5.2 per cent, which is equal to the targetted growth rate for the plan period.

The Seventh Plan 1985-90 which envisaged an aggregate outlay of Rs. 348,148 crore with a public sector outlay of Rs. 180,000 crore ended with an average rate of growth of the gross domestic product (GDP) at 5.3 per cent per annum, which was well above the targetted rate of 5 per cent.

The final year of the Seventh Plan (1989-90) saw the growth of national income by 4 per cent, largely contributed by the secondary (manufacturing) and services sector. The annual average growth of the Seventh Plan has been put at 5.3 per cent, almost equalling the growth rate of the Sixth Plan.

Eighth Plan 1992-97. The Eighth Plan has recognised the need for a re-orientation of planning in keeping with the process of economic reforms and restructuring of the economy. Though a tangible change in the ongoing development process can be effected only over a period of time, the review of initial experience enables us to discern the direction of change and emerging criticalities with a view to identifying the measures to be adopted.

The Eighth Plan emphasises:

- human development as the main focus of planning,
- a large economic space for the private sector,
- physical and social infrastructure development by the public sector (allowing at the same time the private sector to participate), and
- a greater role to the market to infuse

Eighth Plan Targets Selected items



economic efficiency even in the working of public sector.

The Plan proposes a growth rate of 5.6% per annum on the average during the Plan period. An investment of Rs. 798,000 crores at 1992-93 prices is projected for the five year period 1992-97. Out of this, public sector investment will be Rs. 361,000 crores (45%). Adding to this the

current outlay of Rs. 73,000 crores, the public sector outlay would be Rs. 434,000 crores. Consistent with the expected resource position, the size of the Plans of the states and the union territories is projected at Rs. 1,86,325 crore and the Central Plan at Rs. 2,47,865 crore. This outlay is divided between the Centre and the States in the ratio 58.5 : 41.5.

Miles to go

India's rank is 134 out of 174 countries, figuring in the "low human development" category, in the index prepared by the United Nations Development Programme (UNDP).

The 1995 human development report, whose basic feature is the human development index (HDI), ranks countries on the basis of several parametres like longevity, as measured by life expectancy at birth, educational attainment, as measured by a combination of adult literacy and combined primary, secondary and tertiary ratios, and basic purchasing power of standard of living, as measured by real gross domestic product (GDP) per capita in purchasing parity terms.

Other south Asian countries like Pakistan (rank 128), Myanmar (rank 132), Bangladesh (rank 146), Nepal (rank 151) and Bhutan (rank 160) are also placed in the low human development category.

However, the more interesting comparison from the human development viewpoint is between HDI and real GDP per capita. In a less dramatic way, India jumps seven ranks higher than its GDP rank, giving the measure of how well it has done in translating its relatively low level GDP into a better human development performance.

The new feature of this year's report is that it focuses sharply on the two new measures of human development - the gender-related development index (GDI) and gender empowerment measure (GEM). The GDI reveals that among 130 countries for which comparable data were available, India ranks 99, followed by Pakistan (103), Bangladesh (108) and Nepal (115).

While the relative positions of south Asian countries vis-a-vis others remain broadly similar to their HDI rankings, Pakistan loses several ranks on the GDI, relative to its HDI ranking.

The GDI reflects gender imbalances in basic health, education and income using the same variables as the HDI. There was a consistent increase in the GDI value between 1970 and 1992 (an increase of 60 per cent in the case of India). The GEM assesses some critical opportu-

nities that women have for using their capabilities.

The lowest aid per capita India receives the least aid per capita among all low income countries, according to a report "The Reality of Aid 1995" by a London based independent group, Actionaid.

Countries which are in a better economic position such as China, also get far more aid than India, says the report, put together by non-governmental organisations (NGOs) from 21 countries who studied official aid from 22 major donors. In 1993, India received \$ 1,503 million in official development assistance, the bulk of it from Japan, at \$ 1.70 per capita. The same year China received \$ 3,273 million at \$ 2.80 per capita.

Private finance to developing countries has more than trebled over the last ten years but "private finance is not targeted at the poorest countries and is used for purposes other than poverty reduction".

China gets the benefit of more than twice as much aid as India while it also attracts far more investment. In 1993, Bangladesh received \$ 1,386 million at \$ 12 per capita, Nepal \$ 364 million at \$ 17.50 per capita and Pakistan \$ 1,065 million at \$ 8.70 per capita.

Many of the high figures of "aid" that the government manages to secure are no more than pledges of bank loans. Direct aid from countries is a small figure within that and as the report shows, a small figure per capita compared to neighbouring countries.

While developed countries are investing more now in third world countries to promote their business, they are almost all cutting down their aid commitments to the third world, the report says.

Aid to developing countries from the world's richest nations was cut by about \$ 5 million in 1993, the first decline in 20 years. Despite an agreed UN target to give 0.7 per cent of the GNP as aid, the level among developed countries declined from 0.33 per cent in 1992 to 0.30 per cent in 1993.

Business and capital market

Remarkable achievements in the private corporate sector were an outstanding feature of the year. The increasing presence of foreign investors in India was strongly felt. Global investors took the reform process seriously, realised the potential of the Indian market, with all its problems, and looked for investment opportunities. Meanwhile the government's attempts at PSU disinvestment yielded discouraging results.

Private Sector: A success story The year 1994-95 saw a substantial growth in sales and profits of private sector companies, compared to the previous years.

This is the finding of Industrial Credit and Investment Corporation of India (ICICI).

A study by ICICI on Financial performance of private corporate sector, 1994-95 (quick results), said corporate sector witnessed a high growth in sales and profits in 1994-95 due to lower growth in cost of production compared to sales.

The study based on 615 companies from 23 industry groups said the highest growth in gross profits was in non-ferrous metal products group followed by hotel and restaurants (92.9 per cent) and automobiles (81.9 per cent), while the highest growth in sales was in hotels and restaurants (69.1 per cent).

It said, 1994-95 with an anticipated growth of 5.3 per cent in GDP witnessed the fastest growth of the Indian economy since the liberalisation process was launched.

Compared to this, the GDP growth in crisis-ridden 1991-92 was a meagre 0.9 per cent. The turnaround was led by a strong broad-based industrial growth of around eight per cent, and a robust agricultural performance in 1994-95.

The ICICI study said the only dampeners during the year were the accelerated growth in money supply (21.4 per cent in 1994-95 as against 18.2 per cent in 1993-94) and the annual inflation rate which stood at 11 per cent compared to 8.4 per cent in the previous year.

The study said the growth in sales, other incomes, gross profits, operating profits and net profits were substantially higher than the growth achieved in 1993-94, for a sub sample of 402 companies.

The total income of sample companies grew by 30.6 per cent during the year while cost of production rose at comparatively lower rate at 27.7 per cent. The operating profits of the companies rose sharply by 78.1 per cent, helped by a 48.2 per cent growth in gross profits and

reduced growth in interest payments. Net profits of the sample companies also registered an impressive 84 per cent growth.

The study said interest payments grew by a meagre 8 per cent, mainly due to reduction in bank lending rates, lower borrowing costs by resorting to commercial papers and companies raising equity capital to finance working capital requirements. The profitability ratios of the sample companies also looked up during the year with gross profit margin (ratio of gross profits to sales) increasing to

Joint ventures abroad—new criteria

New criteria of six points have been set by Commerce Ministry for Indian companies seeking to set up joint ventures or wholly-owned subsidiaries abroad with direct investments of up to \$ 15 million.

All applications involving investments not exceeding \$ 15 million will be processed by a special committee appointed by RBI and including representatives of the ministries of commerce, finance, external affairs and the RBI.

The financial position, standing and business track record of the Indian and foreign parties and the experience and track record of the Indian party in exports and its external orientation will be taken into account by the committee.

In addition, the quantum of the proposed investment and the size of the overseas venture in the context of the resources, net worth and scale of operations of the Indian party are also to be considered.

Another criterion would be the repatriation by way of dividends, fees, royalties, commissions and other entitlements from the foreign partner for supply of technical knowhow, consultancy, managerial or other services in five years from the time of approval of the investments. The benefit to the country in terms of foreign exchange earnings, two-way trade generation, technology transfer and access to final products not available in the country would also be factors to be considered.

16.6 per cent from 14.6 per cent in 1993-94.

Indian company in Fortune 500 List Indian Oil Corporation (IOC) has emerged as the only Indian company to feature in the 1995 'Fortune Global 500' list.

This follows the addition of 264 service companies which were traditionally listed separately thereby edging out three other Indian companies in the last year's list.

IOC which notched up sales of \$8235.7 million, now ranks 481 by sales and 255 by profits in the new 'Global 500'. Among the petroleum refining companies, it is ranked at 30th place by sales and 19th by profits. The new ranking has displaced last year's first three (General Motors, Ford-Motors and Exxon) to fifth, seventh and eighth places respectively. The new listing is headed by Mitsubishi and is followed by Mitsui, Itochu and Sumitomo. Those who didn't make it the list include, British Steel, Colgate Palmolive and Time Warner.

Emerging market companies Two top Indian business houses, Reliance Industries Ltd, (RIL) and Hindustan Lever Ltd, (HLL) have been ranked among the world's top 100 emerging market companies in a report compiled by Morgan Stanley Capital International Inc. for a

leading US Business magazine.

In the roster based on market capitalisation, RIL is ranked 82nd with a market value of \$2.93 billion followed by HLL at 97th position with a market value of \$2.60 billion.

The list has been compiled on the basis of companies in 26 developing countries tracked by International Finance Corporation (IFC). India's main attraction is the fast rise in corporate profits, growing at a pace 'probably higher than anywhere in Asia,' the report says.

The capital market

Mid-November, 1995 saw the stock market facing a crisis of confidence of investors. The Sensex crashed by over 420 points in the previous three weeks. The erosion in market capitalisation was staggering. The value of investments made by millions of investors fell steeply by Rs. 150,000 crore to Rs. 400,000 crore.

The Bombay Stock Exchange had lost almost 880 points during Samvat (Gujarati New Year) 2051. For two reasons: the ban on forward trading and the uncertain political climate. And Samvat 2052 (October, 1995) began on a dull note.

The glitter is tempting

India is world's leading gold consumer. Of the total demand of 2,443 tonnes in 1994, India's requirement was 415 tonnes, according to an estimate of the World Gold Council. At least 90 per cent of this was meant for private consumption.

India, which has consumers of gold in 55 per cent of its adult population, now offers a growth in demand of about 20 tonnes every year. At least 67 per cent of consumption is for jewellery and industrial usage accounts for 20 per cent. After India, the major demand for gold came from the U.S (283 tonnes), Japan (228 tonnes), China (224 tonnes) and Saudi Arabia (174 tonnes).

According to the Council's CEO for West Asia, Mr. Rolf Schneebeil, despite increasing investments in the country's capital market, the gold market had remained unaffected. This was due to the traditional consumption pattern of the rural population which had always considered gold as the best form of investment. Gold was one form of investment which could hedge inflation to a great extent.

The World Gold Council is an association funded by the world's leading gold mining companies whose aim is to sustain and de-

velop demand for the end-uses of the precious metal. The Council is fast expanding its activities in the country aided by the demand for the precious metal after the scrapping of the Gold Control Act and the increasing purchasing power of the people.

The Council was laying emphasis on India and West Asia which together had a market of 900 tonnes per annum. Developing countries offered a major fertile market accounting for 1,598 tonnes (in 1994)—65 per cent of the total global demand. The developed countries accounted for 845 tonnes.

According to the Council's estimate, jewellery sales in the final quarter of 1994 were above their normal seasonal level as an improved harvest pushed up demand, especially in rural areas—25 per cent above its 1993 level during the marriage season.

Jewellery of about 300 tonnes of gold are made every year in the country.

Legal imports have now become a major source of supply. Supplies entering through the special import licence scheme (SIL) have remained limited as gold has to compete with other products under import restriction, some of which offer much higher profit potential.

India's top brands

Colgate has emerged as the strongest Indian brand for the fourth successive year, according to a survey conducted by the A&M magazine.

Vicks stays on at the second slot while Hindustan Lever's soap Lifebuoy displaces Dettol to emerge as third on the victory stand.

Rank	Brand	Score
1	Colgate	57.7
2	Vicks	46.7
3	Lifebuoy	45.9
4	HMT	44.7
5	Philips	44.5
6	Bata	44.0
7	Lux	43.9
8	Dettol	42.9
9	Britannia	41.1
10	Surf	41.1
11	Pond's	40.4
12	Nirma	40.3
13	Iodex	39.1
14	Rin	38.7
15	Doordarshan	38.6
16	Burnol	37.7
17	Tata	37.2
18	Dalda	36.5
19	Eveready	35.2
20	Anacin	35.1

The onslaught from bears kept the Bombay stock market in a depressed state in November, 1995 with the sensitive index dipping below the psychological barrier of 3200 points and closing at 3193.77 on November 13. The composite national index plummeted and closed at the year's lowest level at 1461.47. Bears went on a rampage on all major stock exchanges, pulling down the share values and indices. It was feared that the Sensex might go below the 3000 level. The reasons for the crash as seen by marketmen were the fall of the rupee against the dollar, tight money market situation, circulation of duplicate shares of some companies, the poor response to the PSU disinvestment programme and the imminent national general elections in 1996. Observers pointed out that it was the

Finance Ministry and to some extent the Securities and Exchange Board of India (SEBI) which led the market to the prevailing plight.

Hopes were pinned on the foreign institutional investors. They could inject some life into the depressed stock market by pumping in more funds. But they were unlikely to oblige until the rupee stabilised at a reasonable level, and the political picture cleared. The immediate hope was focussed on the start of forward trading.

Optimists feel that despite the depressing scenario, the market is poised for a take-off. Screen-based trading is already in place at the BSE, National Stock Exchange and the Over the Counter Exchange of India. The Delhi, Ahmedabad and Calcutta exchanges are to go on-line soon.

India continues to be the favourite investment destination among the emerging markets in Asia and Latin America, according to a survey conducted by a leading international consulting firm. Another international firm, Morgan Stanley, is of the view that India is the most inexpensive market in Asia. Trading at more than 11 times the expected earnings of 1995-96 and with profits growing at 35 per cent, no other Asian market offers such attractive conditions. They believe the market has bottomed out and the next major move will be upwards. This belief is strengthened by the higher rate of growth of the economy in general and industry in particular.

PSU disinvestment When the PSU disinvestment programme of the year met with poor response, a red signal was sent early November to the capital market - a market which was already reeling under the bear run. Against the target of Rs. 7,000 crore for the current fiscal year, the government mopped up only Rs. 168.62 crore in the first round sale of public sector shares for 1995-96. The early expectations were as high as Rs. 2,000 crore.

The Finance Minister in his 1995-96 budget had announced that the government proposed to raise Rs. 7,000 crore in 1995-96 through PSU disinvestment. The government launched the first round of disinvestments in the current financial year by formally inviting tenders for sale of shares of four PSUs on October 9.

Market sources were quick to say that the response was reflective of the bleak investment climate in the country. The investors' sentiment was certainly affected.

The reserve price was not fixed below market rates, and thus only one-sixth of the bids received were accepted.

Consequently, only 167 bids covering 1.53 crore shares of such blue chip companies like ONGC were found to be at prices equal to or

India's very rich households

India has well over half a million households with an annual income of over Rs. 10 lakh. This finding has emerged from a study on the 'Estimates of the Number of Very Rich in India' by the National Council of Applied Economic Research (NCAER) in New Delhi.

The study undertaken by I. Natarajan, chief economist at the National Council of Applied Economic Research is the first detailed scientific attempt to estimate the distribution of households at extremely high levels of income in India.

According to the study, the estimated number of households with an income of over Rs. 10 lakh varies between 300,000 and about 577,000. "A more realistic estimate of this group may perhaps be around 450,000 households", the study notes.

In view of liberalisation and the entry of MNCs into the Indian market, income levels and the purchasing power of consumers are important determinants for the success of new products.

According to the author, the large number of households in the upper income levels above Rs. 5 lakh per annum will attract more premium quality products. The study shows that there are an estimated 1,143 households in this category.

An interesting aspect of the study is the urban-rural breakup of very rich households in India.

This shows that, after the adjustment for black income, there are at least 6,000 rural households estimated to fall in the Rs. 50 lakh annual income group. As against this, the number of urban households in the same income group is 68,000.

For relatively lower income groups, like the one with an annual income of Rs. 10 lakh, there are close to 5 lakh households in urban areas and only around 88,000 households in rural areas.

The estimates are based mainly on data from the reported responses of households with incomes above Rs. 86,000 per annum, which were covered in the National Council of Applied Economic Research's earlier Market Information Survey of Households (MISH), which provides data up to 1993-1994.

above the reserve prices. All valid bids quoted at prices equal to or above the reserve price for each PSU were considered and the offers were accepted in descending order of the price so offered, a press note issued by the Department of Public Enterprises (DPE) said.

Out of a total of 27.14 crore shares of four PSUs offered for sale, only 1.53 crore shares could be sold on the basis of reserve prices and an amount of Rs. 168.62 crore was expected to be realised.

Observers attributed the poor response not only to the prevailing market sentiment, but also the expectation that government would sell at a discount. They added that there was a poor response from foreign institutional investors, despite the roadshows organised in London, Singapore, Hong Kong, etc.

That the PSU auction got only five per cent response indicated the market was starved of funds. Brokers believed the market was heading towards a bearish phase.

Financial experts think that the Government which was planning to reduce the fiscal deficit through PSU disinvestment will have to find other alternatives to come out of a fiscal crunch. The borrowing plans of the Government (through dated securities and treasury bills) are also likely to be hit.

As a money market dealer said, the tight money condition (as is evident from high call rates), weakening rupee and the falling share indices show that Indian markets are now facing a turmoil. "The funds crunch has started taking a toll. This situation will have an impact on the fiscal position of the Government," he said.

If the Reserve Bank of India takes measures to bring about stability in the money market, there will be repercussions in the banking system. When RBI intervened in the foreign exchange market, there was a turmoil in the money market. The situation seemed to be fluid mid-November.

On investing in Indian stocks Global investors are unanimous in their view that the reforms process in India is irreversible.

They believe Indian stock markets have the potential to attract foreign investible funds of upto \$ 10 billion (over Rs. 34,000 crore) a year.

Most fund managers of major international finance houses rate India above China and other Asian markets. The other top emerging markets are Malaysia, Chile, Poland, Argentina, Peru and South Africa.

The findings were made in an exclusive 'Economic Times' survey in July, 1995.

The potential is high but the hurdles are many. Inadequacies of Indian stock markets make foreign portfolio investors think several times before investing in Indian stocks.

PSU disinvestment

Company	Reserve price (Rs)	Market price (Rs) (20 Oct)	No. of shares offered (lakh)	No. of Shares accepted ♦ (lakh)	Amount to be realised (Rs. cr)
ONGC	252	242	356	2	5.21
SAIL	30	31	1993	44	13.37
MTNL	152	156	300	87	135.92
Cont.Corp	67	Not listed	65	20	14.12

♦ On the basis of reserve price fixed by government

According to fund managers, the major hindrance to attracting larger investment flows is the inefficient system of settlement and securities registration. The lack of a central depository, inordinate delays in getting shares transferred, and the delays in the settlement procedure itself, besides practices like manipulation of share prices by companies before the launching of public issues were mentioned by nearly

every senior investment banker in Singapore, Hong Kong and London.

International finance house managers feel that India is unable to cash in on its great potential because of poor systems.

The estimates of funds the Indian market can attract every year vary from \$5 billion to \$10 billion. Against this, the cumulative net inflow of funds through stock markets has been only

The 23 Stock Exchanges

Following are the recognised Stock Exchanges in India with addresses.

1. The Bombay Stock Exchange; Phiroze Jeejeebhoy Towers, Dalal Street, Bombay-400 001

2. The Ahmedabad Stock Exchange Assn., Ltd.; Manek Chowk, Ahmedabad-380 001

3. Bangalore Stock Exchange Ltd.; 'M' Block, First Floor, Unity Building, J.C. Road, Bangalore-560 002.

4. Bhubaneswar Stock Exchange Assn., Ltd.; 217 Budh Raja Bldg., Jharpada Cuttack Road, Bhubaneswar-751 006.

5. The Calcutta Stock Exchange Assn. Ltd.; 7, Lyons Range, Calcutta-700 001.

6. Cochin Stock Exchange Ltd.; Exchange House, 38/1431, Kaloor Road Extension, Ernakulam, Kochi-682 035.

7. The Delhi Stock Exchange Association Ltd.; 3 & 4/4B, Asaf Ali Road, New Delhi-110 002.

8. The Gauhati Stock Exchange Ltd; Saraf Building Annexe A.T. Road, Guwahati-781 001.

9. The Hyderabad Stock Exchange Ltd.; Bank Street, Hyderabad-500 001.

10. Jaipur Stock Exchange, Ltd.; Rajasthan Chamber Bhawan, M. I. Road, Jaipur-302 003.

11. Kanara Stock Exchange, Ltd.; 4th Floor, Rambhavan Complex, Kodialbail, Mangalore-575 003

12. The Ludhiana Stock Exchange Assn. Ltd.; Lajpat Rai Market, Clock Tower, Ludhiana-141 008

13. Madras Stock Exchange Ltd.; 'Exchange Building', Post Box No. 183, 11, Second Line Beach, Madras-600 001

14. Madhya Pradesh Stock Exchange Ltd; 67, Bada Sarafa, Indore-452 002.

15. The Magadh Stock Exchange Ltd; Bihar Industries Assn. Premises, Sinha Library Road, Patna-800 001.

16. Pune Stock Exchange, Ltd.; 1177, Budhwar Peth, Bank of Maharashtra Bldg., 2nd Floor, Bajirao Road, Pune-411 002.

17. Saurashtra Kutch Stock Exchange, Ltd.; 4. Swaminarayan Gurukul Bldg., Dhebarbhair Road, Rajkot-380 002.

18. The Uttar Pradesh Stock Exchange Assn. Ltd. Padam Towers, 14/113, Civil Lines, Kanpur-208 001.

19. Vadodara Stock Exchange Ltd; 101, Paradise Complex, Tilak Road, Sayaji Gunj, Vadodara-390 005.

20. Coimbatore Stock Exchange, Chamber Towers, 8/732, Avinashi Road, Coimbatore-641 018.

21. Meerut Stock Exchange Ltd.; Kingsway Building, 345, Bombay Bazar, Meerut Cantonment-250 001.

22. OTC Exchange of India, 92-93, Maker Towers "F" Cuffe Parade, Bombay-400 005.

23. The National Stock Exchange of India Ltd, Mahindra Towers, A-Wing, RBC, Worli, Bombay-18.

\$3.3 billion since the markets were opened up.

Aggregate private capital flows to emerging markets are now placed at around \$90 b. a year. It was only \$20 billion a decade ago.

Foreign investors arrive By April, 1995, foreign firms had pumped in an estimated \$3.14 b. into India's stock markets since the reform programme was launched by the government in 1991. Foreign banks saw India, a big and potentially growing market, as the investment opportunity of the decades.

James Capel & co. Ltd., Merrill Lynch Asset Management tied up with Indians firms. Major international investment banks such as Morgan

Stanley, Jardine Fleming, Barclays de Zoete Wedd (BZW), Kleinwort Benson, CS First Boston, J.P. Morgan, Smith New Court and several others also set up offices in India recently. Another early entrant was UK's Lazard Brothers.

Investors see India's strong private sector and an established capital market as major advantages. Indian companies were among the largest overseas equity issuers among emerging markets in 1994, raising over \$ 3.0 b. The Congress Party's defeat in five crucial state elections since November, 1994 did not dissuade foreign investors, who took the political changes with equanimity.

The banking sector

Banks continued to cope with the difficult challenge in adjusting to a more competitive market environment being sought to be created by financial sector reforms. The positive trends that had emerged in the banking system during 1993-94, were further strengthened and confirmed during 1994-95. Banks vigorously undertook streamlining efforts to cope with the fast changing requirements of the real sector.

The banking system was now set to enter the second stage of reforms and structural changes which were certain to witness significant operational and financial improvements. Reforms in the financial sector have constituted an integral component of the overall programme of structural reforms of the Indian economy and aimed at improving overall productivity.

In the first stage of the reform process, which began in July 1991, efforts have been made to put in place durable structural changes and a regulatory framework which will enhance the efficiency of resource use and provide an incentive to banks to help support activities in the productive sectors of the economy.

The reforms, therefore, were directed at the gradual reduction in the resources of the banks, rationalisation of the interest rate structure and the prescription of the prudential norms. These measures were taken to support the objective of reforming the Indian financial sector in order to improve the allocative and financial efficiency of the banking system and put in place a diversified and competitive system, which would support the development and growth of the economy.

The banks, especially, those in the public sector, have demonstrated a remarkable ability in adjusting to the new operating environment

and acquiring higher levels of business strength. Today the banking system operates within a set of internationally recognised prudential accounting norms of income recognition, asset classification, provisioning and capital adequacy. The crucial element of the financial sector reforms had been rationalising the interest rate structure.

The improvement in the performance indicators of public sector banks was largely a result of reduction in provisioning towards bad debts. Interest income also increased - both on loans and investments - on account of the spurt in lending activity during 1994-95 from a return of Rs. 705 crore on recapitalisation bonds issued by the Government. There was also a sharp increase in income from non-fund activities as also from subsidiaries of the banks.

Commercial Banking The liberalised branch licensing policy for 1990-95 continued with no major changes during 1994-95. Under the performance obligation and commitments under recapitalisation, those nationalised banks which have reported net losses in 1992-93 have committed not to open new branches. Since then the criteria for opening new branches have been reviewed and includes compliance with 8% capital adequacy norm, net profit for three consecutive years, the need to ensure that non-performing assets do not exceed 15% of total outstanding loans, and the requirement of minimum owned funds of Rs. 100 crore. Banks have been permitted to install Automatic Teller Machines (ATMs) at branches and extension counters for which they hold appropriate licences. Installation of ATMs at other places identified by the banks require a licence from the Reserve Bank on a *post facto* basis.

The banking sector in India, in 1994 wit

nessed a momentous change in the government's attitude towards its functions. In consonance with its policy of economic liberalisation whose prime objective is motivation for private enterprise and profit-making, it okayed privatisation of banks. Parliament on May 11 passed a bill allowing privatisation, reversing the 25-year old nationalisation policy which Indira Gandhi had begun with big fanfare in 1969.

Commercial banking, social banking and back to commercial banking now. The wheel has turned a full circle between the middle of 1969 and 1994. Populism has now been supplanted by concerns about profitability, accounting ledger by the need for a true and faithful disclosure of the actual state of affairs and a virtual state monopoly (what the Reserve Bank of India governor described as "Darwinian banking") coming to an end with private sector banks again entering the fray.

With such revolutionary steps to changing the character and complexion of banking, the silver jubilee of the takeover of 14 large commercial banks evoked little enthusiasm.

In a sense, the nationalised banks' predicament had an air of inevitability about it. Even at the time of takeover, discerning observers had cautioned the government against taking such

a far-reaching measure. It was felt that the Reserve Bank had enough weapons in its armoury to exercise control over the banking system. But political expediency triumphed and the outcome was the take over of 14 largest banks, ranked in terms of deposits way back in 1969.

Nationalised Banks' lead Nationalised banks as a group contributed 57.0 per cent of the aggregate deposits in 1994-95 while the State Bank of India and its associates accounted for another 25.7 per cent, according to the RBI banking statistics of 1994-95.

Foreign banks accounted for 7.5 per cent, other scheduled commercial banks' 6.9 per cent and regional rural banks 2.9 per cent.

Among the states, the growth rate of deposits was the highest in Orissa (30.4 per cent) followed by Karnataka (28.60 per cent), Jammu & Kashmir (28.1 per cent), Himachal Pradesh and Gujarat (22.5 per cent each) and Haryana (22.4 per cent).

The growth rate of bank credit was, however the highest in Maharashtra (28.9 per cent) followed by Andhra Pradesh (27.5 per cent), Tamil Nadu (24.7 per cent), Karnataka (24.3 per cent), Gujarat (23.3 per cent) and Jammu & Kashmir (20 per cent).

Six states including Maharashtra and Uttar

Nationalised Banks-comparative position of deposits

Name of the Bank	Deposits at the time of nationalisation	Deposits as at the end of March 1994
A. Banks nationalised in July 1969	June 1969	
Bank of India	432	21,420
Punjab National Bank	383	N.A
Bank of Baroda	355	23,117
Central Bank of India	482	15,967
Canara Bank	180	19,839
UCO Bank	240	9,298
Indian Bank	87	11,818
Syndicate Bank	145	10,112
Indian Overseas Bank	89	10,805
Union Bank of India	133	11,801
Allahabad Bank	125	8,458
United Bank of India	168	6,992
Dena Bank	134	4,924
Bank of Maharashtra	87	4,483
B. Banks nationalised in 1980	Dec. 1980	
Andhra Bank	668	4,941
Oriental Bank of Commerce	315	5,239
Punjab & Sind Bank	626	4,025
Vijaya Bank	437	4,294
Corporation Bank	308	4,118
New Bank of India ♦	503	-

♦ (merged with PNB in 1993) Deposits= (Rs. in crore)

Source: Indian Banks' Association

Pradesh, together accounted for a total share of 56.4 per cent in aggregate deposits and 59.7 per cent in gross bank credit.

Nationalised banks closed down as many as 371 of their loss-making rural branches during 1994-95. The number of regional rural banks has remained static at 196.

Population per branch has remained 14 per one thousand. The metropolitan branches marked an increase from 5,929 to 6,004.

The highest number of additional branches have been opened in semi-urban area where the number of branches went up from 11,720 to 12,270. The urban branches increased from 8,824 to 8,982 in 1994-95.

The all India credit deposit ratio as on the last Friday of fiscal 1994-95 worked out to 59.2 per

cent. This ratio was 75 per cent for State Bank of India and its associates, 59.1 for foreign banks. The ratios for nationalised banks was 52.3 per cent and 56.9 per cent for regional rural banks.

The Banker survey A survey of the top 1,000 banks by *The Banker* - a *Financial Times* publication - features 10 Indian Banks in the list.

While the State Bank of India, the first among Indian banks, is ranked 240 in terms of tier one capital, Bank of India ranks 565, Canara Bank 583, Bank of Baroda 659, Syndicate Bank 721, Punjab National Bank 759, UCO Bank 904, United Bank of India 963 and the Maharashtra State Cooperative Bank ranks 985.

Banks and Exports The government has identified 22 growth centres in the country and niche banking facilities would be set up at these centres to facilitate exports. Announcing this at the meeting of the Board of Trade, the Commerce Minister P. Chidambaram said in June, 1995 that he would resume discussions with large industrial houses to seek specific export plans from them. The governor of the Reserve Bank of India also announced that 100 specialised branches of commercial banks would be started by the year end to cater to the needs of small scale exporters. Several members had urged the government to improve the credit facilities for the small scale exporters.

The commerce secretary Tejendra Khanna suggested the setting up of a consultative mechanism for interface between the banks and the small scale industry to facilitate banking support for the latter.

Ombudsmen for Banks The Reserve Bank of India (RBI) announced the introduction of a scheme of appointing ombudsmen to redress grievances of bank customers.

This is a new experiment to establish a system for expeditious resolution of disputes between banks and their customers.

The scheme applies to all commercial banks other than regional rural banks. Fifteen offices of the ombudsmen will be set up with territorial jurisdiction over specific states. While the ombudsman's office is being projected as an additional alternative to the existing redressal fora like the courts, RBI officials point out that this option cannot run parallel to them.

The central bank announced the appointment of first three officials to the office of the ombudsmen in June, 1995. These include B.N.Shetye for Maharashtra and Goa, A.K. Pandya for Madhya Pradesh and B.L. Chadha for Delhi, Haryana and Jammu & Kashmir.

The concept does not presently apply to cooperative banks where most of the banking an

Top Indian Banks

Top Indian banks, as revealed in the study of performance of public sector banks by the Indian Banks Association (IBA).

The top five banks

(according to four profitability parameters)

Rank	Bank	ROA
Return on Assets:		
1	Corporation Bank	1.56
2	Oriental Bank of Commerce	1.38
3	Canara Bank	0.77
4	Union Bank of India	0.62
5	State Bank of Hyderabad	0.62

Rank	Bank	ROE
Return on Equity:		
1	State Bank of Patiala	131.87
2	State Bank of Indore	103.87
3	State Bank of Travancore	103.61
4	Union Bank of India	31.50
5	Corporation Bank	30.96

Non-Performing Assets as Percentage of Total Assets:

Rank	Bank	% NPA
1	Oriental Bank of Commerce	4.14
2	Corporation Bank	4.90
3	Union Bank of India	9.40
4	State Bank of Indore	10.65
5	State Bank of Saurashtra	10.73

Rank	Bank	CA
Capital Adequacy:		
1	Oriental Bank of Commerce	18.69
2	State Bank of India	12.77
3	Corporation Bank	10.70
4	Canara Bank	10.39
5	State Bank of Patiala	10.00

financial frauds occur. The RBI is thinking of extending the scheme to urban co-operative banks shortly.

Cluster Banking Canara Bank is considering the possibility of introducing the 'cluster banking' concept for its branches.

Cluster banking refers to clusters of branches or extension counters, spanning a radius of eight to 10 kms which are networked with each other and the main branch. This means the customer of any branch can now be a customer of a cluster and as such can go to any branch in the cluster to do a banking transaction. When clusters are inter-connected, a customer can do any transaction at any branch in a particular city.

As a preliminary step towards this, Canara Bank has successfully tested radio wave connectivity at one of its extension counters in Bangalore.

Cluster banking ensures that all the security levels available at the main branch will be available at the extension counters. The entire data of all the clustered branches can now be made available on the main system. The PCs that are provided in the satellite branches will be all connected to the main server.

Vijaya Bank, on November 15, 1995, became the first public sector bank to launch "any branch banking" in Bombay.

RBI measures

In September, 1995 The Reserve Bank of India initiated moves towards deregulating the financial sector. Governor Dr. R. Rangarajan, announced the credit policy for the 1995-96 busy season, with moves which were expected to provide some deposit growth in the system.

The highlights of the policy

- ◆ interest rates on term deposits freed for maturity periods of over two years;

- ◆ stipulations relating to cash reserve ratio, statutory liquidity ratio, lending rates and export credit refinance facilities remain unchanged;

- ◆ interest rates on term deposits of between 46 days and up to two years still subject to ceiling of 12 per cent;

- ◆ proportion of refinance against government and other approved securities doubled to 1 per cent; base year brought forward from 1991-92 to 1994-95;

- ◆ interest rate ceiling on term deposits under Non-resident (External) Rupees Accounts raised to 10 per cent from 8 per cent earlier;

- ◆ banks free to charge any interest rate on advances of over Rs. 2 lakh against term deposits in domestic and NRE accounts; current regulation will continue for FCNRA, FCNR(B) and NRNR deposits;

The main functions of RBI

- i. Issuance of currency
- ii. Acting as banker to central/state governments and conduct of banking/financial operations of the government
- iii. Bankers' bank
- iv. Internal debt management
- v. Rendering of advice to Government on financial matters
- vi. Maintenance of the exchange value of the Rupee
- vii. Acting as agent of the Government in respect of India's membership of International Monetary Fund
- viii. Exercising control over payments and receipts in respect of international trade and various other kinds of foreign exchange transactions.

- ◆ cash credit component in bank credit to large borrowers reduced from 75 per cent to 60 per cent and 'loan' component increased from 25 per cent to 40 per cent; all other terms and conditions remain unchanged;

- ◆ minimum period of repo deals for government and other approved securities increased to three days;

- ◆ uniform Rs. 15-crore overnight foreign exchange open position limit in foreign markets removed; RBI to fix individual limits for banks;

- ◆ regulation of direct and portfolio investment by NRIs and overseas corporate bodies relaxed;

- ◆ prudential norms, including income recognition, exposure limits and provisioning, being prepared for regional rural banks;

- ◆ RRBs can provide housing finance up to Rs. 1 lakh per borrower and, subject to ceiling of 5 per cent of RRBs incremental deposits during a year.

Checking call money rates

In a bid to bring down call money rates, the Securities Trading Corporation of India, a subsidiary of the Reserve Bank of India (RBI), on Nov. 14 injected Rs. 4,000 crore through buyback of three-day Repos (ready-forward deals in Government securities).

In spite of this step, the call rate, which was expected to come down to 25 per cent, opened at 40 per cent and closed at 35 per cent after touching 50 per cent. On Nov. 9, the tight situation in the money market was demonstrated when the inter-bank call money rates shot through the roof and crossed the 100 per

cent mark to touch an unprecedented high of 135 per cent.

The 0.5 percentage point reduction in cash reserve ratio (CRR) to 14.5 per cent failed to ease the surging call money rates. This measure had released Rs. 2,000 crore to the banking system. RBI had intervened in the market to the extent of Rs. 2,000 crore to take care of the outflow of Rs. 1,200 crore due as the third instalment of the on-tap Government paper.

The market's daily requirement during the season was around Rs. 4,000 crore.

The root of the problem lay with the apprehension that there would be scarcity of dollars in future.

The RBI officials described the demand of liquidity as mostly speculative in nature.

Mutual Funds

Mutual funds provide access to the small investors to capital market opportunities, with higher returns.

Credit cards

Recent years have seen a boom in credit card business in India. About 60,000 merchant establishments accept credit cards as a means of payment.

The credit cards in India today, with their numbers are: Citicard-300,000; Bobcard-180,000; Cancard-180,000; Andhra Bank card-160,000; Citi Diners-100,000; Central Bank-85,000; Stanchart-75,000; Bank of India-75,000; ANZ-40,000; HSBC-25,000; Amex-12,000.

India as a market is in a nascent stage with credit card penetration amounting to just 15 per cent of the customer potential available.

Along with the popularity of credit cards, the crime rate related to plastic money frauds is also increasing. The total fraud in credit cards the world over is one per cent of the total turnover. In India, in 1994, out of a turnover of Rs. 800 crore of domestic usage, Rs. 2.4 crore is the loss due to frauds.

Credit Card frauds are of different kinds. A report prepared by Standard Chartered Bank gives the percentage breakup of different types of fraud:

Stolen (29.8%), Lost (26.6%), Never Received Issuance (19.3%), Counterfeit (11.2%), Multiple Imprint (2.0%), Fraud Application (1.6%), Others (9.5%).

Collection of funds from the public, investment of the resources raised in capital markets, holding investment in trust and ensuring proper management of investment portfolio are the functions of mutual funds. The Unit Trust of India (UTI), the pioneer in mutual funds, was set up in 1964. In 1988, after Government notified that the mutual fund business could be carried out by the banks, the RBI permitted commercial banks to set up mutual funds and the SBI was the first bank to launch mutual fund.

The three major categories of mutual funds today are UTI, public sector mutual funds and private sector mutual funds.

The mutual funds (including Unit Trust of India) mobilised contributions to the tune of Rs. 11,342 crore during 1994-95 as against Rs. 11,243 crore during the previous year. Out of Rs. 11,342 crores, UTI accounted for Rs. 8,681.0 crore, Public Sector Mutual Funds Rs. 1,334.2 crore, and Private Sector Mutual Funds Rs. 1,326.8 crore.

Most of the listed schemes of the mutual funds were reportedly being quoted on the stock exchanges at discounts to their net asset values. The appeal of mutual funds marked a decline in the year 1995.

LIC's creditable achievement

The Life Insurance Corporation of India registered an all-time high growth of 32.08 per cent in business during 1994-95 against its target of 20 per cent.

The Corporation paid Rs. 140.35 crore during the year against Rs. 118.42 crore in the previous year. The life fund of the corporation shot up from Rs. 49,665.82 crore to 59,978.90 crore during the year.

The Corporations business spurted by over Rs. 13,410 crore during the year, the highest ever in LIC's history. It has targetted a business growth of 17 per cent with an increased business volume of Rs. 64,618 crore in 1995-96. The Corporation aims at 1.24 crore of policies during the year. The amount of policies sold during 1994-95 was 1.8 crore.

The total amount of business went up from Rs. 41,813.83 crore in 1993-94 to Rs. 55,228.50 crore in 1994-95.

The number of new policies increased from 107.25 lakh to 108.75 lakh. The Corporation paid a total amount of Rs. 4130.80 crore for the claims in 1994-95 as against Rs. 3374.74 crore the previous year.

The rural segment policies have gone up steadily from 45.3 per cent to 46 per cent. The total amount of business from the same has also increased from 39.9 per cent to 40 %.

Tourism

Tourism today is one of the world's fastest growing industries. It earns over \$3 trillion (US) worldwide, generated by over 500 million international travellers rising to 660 million by 2000. India received 1.909 million foreign tourists in 1994-95 and earned foreign exchange worth Rs. 76.37 billion.

According to Air India sources, in 1994, 4 million Indians flew overseas. An estimated 1.3 million of them were either leisure travellers or those who combined business with holiday. This is just over 15% of the total potential traffic.

The domestic tourist visits have risen from 34.8 million in 1987 to 81 million in 1992, averaging an annual growth rate of 18.4%.

The economic contribution of tourism is generally measured in terms of its share in the GDP and employment generation. The value added during 1992-93 was Rs.744.76 billion, registering an annual growth rate of 14.7%.

Over 1 million additional jobs were created in the tourism sector in 1994-95. Direct employment in the sector was 7.8 million, about 0.4 million more than in 1993-94. The total employment, direct and indirect, was 18.4 million, about 1 million more than the estimated figure for 1993-94.

The significant feature of the tourism industry is that it employs a large number of women—educated, uneducated, skilled or unskilled. Women, in fact outnumber men in hotels, airline services, travel agencies, handicraft and cultural activities.

The employment multiplier figure in the tourism sector is 2.36, i.e., a direct employment of one person in tourism creates jobs for 1.36 persons in other sectors of the economy.

The labour-capital ratio is far higher in the tourism sector at 47.5 compared to manufacturing 12.7, Railways 0.9, other transport 13.8 and mining and quarrying 2.6.

The employment per million rupees of output is much higher in tourism than in other sectors. At 1983-84 prices, the employment-output ratio in tourism was 71, leather 51, textiles 27, electricity 14, beverages 12 and cement 6. Generally, the visit of each foreign tourist provides employment to one person and 6.5 domestic tourists generate one job.

Tourism potential of South Asia needs to be tapped fully. The entire South Asian region which accounts for over a third of the world population does not receive even 1% of the foreign tourist arrivals. Of the total number of

tourists arriving in South Asia, India's share has come down from 71.8 % in 1983 to 69.5% in 1993. World Tourism Organisation has predicted that the total volume of tourist traffic by the year 2000 will be 660 m.; number of arrivals in South Asia is projected as 6 m. WTO says that India is in for a tourism boom with the South Asian region emerging as the second fastest growing region in 1994 in terms of tourism inflows at 7% after East Asia which clocked a growth rate of 7.6%

The foreign tourists coming to India are only 0.4% of the world arrivals and the receipts are 0.51% of the world receipts. The main growth to fuel an expected 10% increase from the main source markets is, therefore, expected to come from UK, the US, Germany and France. The tourists are expected to grow by 14.9%, 14.8%, 10.9% and 10.3% respectively. Revenue from tourism was Rs. 45.73 billion in 1993-94, when there were 1.8 million visitors. This marked an increase of 14.6% over the foreign exchange earnings in 1992-93.

A Marketing thrust: An integrated global marketing plan for 1994-95 to sell India as a tourism destination abroad is another move by the Department of Tourism. This is the first time that the department is trying to evolve a marketing thrust with an integrated approach. Till now the focus had been on region-wise plans, which were unrelated. The department merely chalked out region-wise strategies such as Operation Europe and Operation USA. The thrust of the new strategy will be on specific countries and not on regions. The United Kingdom, Scandinavian countries, the US, South Africa and Israel are expected to emerge as the thrust markets.

The strategy also focuses on countries which can generate tourist traffic during the lean months. The department is trying to develop traffic during the shoulder periods, that is, the months preceding and succeeding the season.

The government had cleared investment up to Rs. 730 crores in the hotel industry from foreign chains and entrepreneurs. Plans to strengthen the infrastructure include improved air linkage, expansion and modernisation of the five international and 14 domestic airports (a project of Rs. 15 billion) and doubling of accommodation capacity to 100,000 rooms in the approved category. There are already 200,000 rooms in the unclassified category. Ten thousand km of new roads for the new highways

would be a key component of the infrastructural back-up in which the private sector and foreign investors would participate.

Infrastructure:

Tourism has now come to occupy a strategic position due to its contribution to economic growth and the need for development and maintenance of tourism infrastructure. A responsive private sector is poised for gear leap forward down the information superhighway because electronic traffic will surge through when frequent travellers clicking on their laptop computers would access airline, hotel, car rentals, etc.

India has 12 million cable TV homes accounting for 20% of the urban Indian households. By 2005, it is estimated that 30 million homes will receive cable and satellite TV which could easily promote tourism. Interestingly, multi-media interactive CD ROMs, Virtual Reality interactive displays and TV advertisements are still only virtual experiences; they whet the appetite for the feel of the real thing. Cyber-wise countries are already planning to ride the crest of this electronic wave. China has distributed a CD ROM tour of the Forbidden City. Electronic marketing has begun to flow both into and out of India.

Airlines and Charter flights cater to the valued tourists. The increasing airfares and the Charter companies seldom offering 'package tour' but only 'package commuting' is actually not helping the industry much. But still, 37 airlines have queued up to come to India. Kuwait Airways has already started a tri-weekly flight on 31st Oct. 1995, between Kuwait and Trivandrum, to make Kerala a choice destination for the leisure seekers of the Gulf and Middle East.

Tourism infrastructure in the country is being strengthened with the introduction of McDonalds, Pepsi and Coca Cola — brand names that have become synonymous with tourism.

Leisure and entertainment groups such as Thank God It's Friday and Warner International will soon start operations in India. Cars and coaches are being imported for tourists, and very soon a new range of passenger vehicles will



be manufactured in India by well-known international companies from Europe, America, Japan and Korea.

Golf courses, adventure tourism, ski resorts and amusement parks are being set up in the country and India is expected to become an interesting golfing destination in the coming years.

Old English clubs like the Royal Golf Club in Calcutta and others are being revived while new ones are also being set up in consultation with famous golfers such as Jack Nicklaus.

New international hotel chains coming up in India include Four Seasons Hotel, Ritz, Carlton, Marriott and Days Inn.

Sindhudurg in Maharashtra, Diu near Gujarat and Bekal in Kerala are being set up as beach destinations. Hotel rooms are being added and the current capacity of 52,000 rooms is slated to go up to 80,000. The target of 100,000 rooms by 1997 is likely to be met. The Heritage hotels have become popular.

Foreign investment in the hotel and tourism sector is being encouraged under the new economic policy. Foreign equity up to 51 per cent is cleared automatically and above 51 per cent is cleared on priority basis by the foreign promotion board in the Prime Minister's Office.

Air India and Indian Airlines have increased services and new air taxi operators have increased their frequencies. Eight new trains along the lines of the "Palace on Wheels" are to be introduced with private investment. On a similar pattern, Indian Airlines and the department would help each other in the domestic sector for promotion of tourism in the country.

A survey has pointed out that a major handicap in the development of tourism in India has been 'the lack of vision, enterprise and aspiration on the part of the Indian hotelier'. The five-star chains are confined to the major cities and a few tourist spots. There is a dearth of four-star and budget hotels. There are no hotel chains offering accommodation in medium and small towns. The tariff structure of five-star hotel is not affordable by a vast majority of domestic and international tourists.

Accommodation for 5 million foreign tourists and 90 million domestic tourists by 2001 is a challenge to the government requiring considerable political will since tourism is a state subject and prone to its own whims and fancies. For though 20 states have accorded tourism the status of an industry, few have gone beyond such pious declarations. For example tourism in Maharashtra is still to benefit since it received the status of industry two years ago. Some states like Rajasthan and Goa, have tried to solve the accommodation problem by encouraging tourists to live with local families. Others like Kerala have tied up with reputed hotel chain to take over existing government properties and build new ones. Kerala has also launched innovative "Live in riceboat" on its picturesque backwaters. Bihar and UP is projecting itself as a Buddhist tourist destination to attract Japanese, Koreans, Chinese and others.

Rajasthan is setting up a new category of accommodation heritage hotels, using its royal abodes, old havelis and castles, such as Jai Palace of Kota, Umaid Bhavan Palace, Jodhpur. This scheme demands conservation and restoration of historic buildings in the country at large.

Travel Industry: India's travel industry is in for a major facelift, with the entry of some of the major and technologically-advanced CRS (computer reservations systems) companies in the country.

Amadeus, Sabre, Abacus and Galileo Interna-

tional have signed up with several Indian companies, who would serve as the National Distribution/Marketing Company (NDC/NMC) agency in the country - a development which will benefit the Indian consumer as well.

Thus Galileo International has tied up with Inter-Globe Travels as its NDC; Indian Airlines and Air India are the joint distributors for the American-owned Sabre system; Amadeus India is the marketing agency for Amadeus; the Singapore-based Abacus has tied up with Tata Consultancy Services. (The NDC/NMC has exclusive rights to distribute the CRS product in the assigned territory). Most of the CRS systems are owned by conglomerates of international airlines.

A CRS system puts travel product vendors - cars, hotels, airlines, rail and leisure vendors - in touch with the travel product buyers.

Travel Agencies' role: The opening of India's economy has led to a major transformation in the Indian travel agency business.

Major players are enhancing the range and quality of services and seeking membership of prominent international travel management networks, the latest being SITA World Travels' Alliance with the Woodside Travel Trust (WTT).

Moreover, foreign travel companies like the Peninsular and Oriental Steam Navigation Company (P&O), which have entered into joint venture agreement with Indian companies and international Computerised Reservation Systems (CRS), are making a bid to consolidate themselves.

In another development, there has been a near 35% increase in the number of IATA (International Air Transport Association) approved travel agencies over the last two years with the easing of the criterion for acquiring such status.

Consequently, to face the growing competition prominent travel agents are not only sprucing up their act but are also diversifying. The process is likely to get accelerated with the entry of foreign companies.

Consumer Movement

Consumer movement is a socio-economic movement which seeks to protect the rights of the consumer in relation to the seller. The movement being social one, has to be developed on a voluntary basis through greater participation of voluntary consumer organisations. Consumer movement in India is beginning to establish an identity of its own. Almost thirty consumer oriented legislations,

the impact of new professionals working in the media, the springing up of various active consumer associations, have all contributed to the change. Consumers' awareness is gaining momentum slowly. The Union Government has earmarked Rs. 61 crores (in 1995) for the establishment of Consumer Courts at district-level. Besides the Centre has created a corpus of Rs. 19 crores as Consumer Welfare Fund which

would provide assistance to non-governmental organisations (NGOs) working in the area of consumer protection.

It is the Consumer Protection Act 1986, that provides the impetus and an extremely good opportunity for the aggrieved Indian consumer. The 15th March is celebrated as the Consumer Day.

This Act incorporates provisions which ensure consumers with effective safeguards against unfair trade practices indulged in by both the manufacturers and the public utility services. It provides for the consumer protection councils at the central and state level, to uphold, promote and protect consumer rights. This Act also provides for the consumer grievance redressal machinery with the District Forums at the district level, the State Commissions at the state level and the National Commission in New Delhi.

The National Commission (started working w.e.f. 27.12.1988), State Commission and District Forums must decide complaints either within three months from the date of notice received by the opposite party, where the complaint does not require analysis or testing of commodities and within five months if it requires analysis or testing of commodities.

Depending on the kind of relief sought by the consumer, the redressal forums may pass orders for any of the following: either the removal of defects from the goods; replacement of the goods; refund of the price paid; or award compensation for the loss or injury suffered. Fine and imprisonment are provided for as penalties, if its orders are not implemented.

Appeal against the District Forum's decision can be filed before the State Commission within a period of thirty days. Appeal against the State Commission's decision can be filed before the National Commission within thirty days. Appeal against the National Commission's orders can be filed before the Supreme Court within thirty days.

Medical services comes under CPA The Supreme Court on 13th November, 1995, upheld the National Consumer Commission's judgement of April 1992, whereby patients who received deficient services by medical profession and hospitals are entitled to claim damages under the Consumer Protection Act, 1986.

Consumer Protection Act, (COPRA) 1986: In December 1986, seven major consumer protection legislations, namely the Essential Commodities Act, 1955; the Prevention of Food Adulteration Act, 1954; the Drug and Cosmetics Act, 1940; the Monopolies and

Restrictive Trade Practices (MRTP) Act, 1969; the Agriculture Produce (Grading and Marketing) Act, 1985, were amended to empower consumers and registered consumer organisations to file complaints in court. Enactment of the Act (1986) is one of the most important steps in protecting the rights of consumers and promoting a strong and broad-based consumer movement in the country.

The salient features of the Act are as under:

1. The Act applies to all goods and services.
2. It covers all sectors private, public, cooperative etc.
3. It enshrines the six rights of consumer, namely (1) Right to safety, (2) Right to be informed, (3) Right to choose, (4) Right to be heard, (5) Right to seek redressal and (6) Right to consumer education.

4. It envisages establishment of Consumer Protection Council at the Centre and State level whose main objects are to promote and protect the rights of consumers.

5. It provides simple, speedy and inexpensive redressal to consumer grievances with regard to defective goods, deficient service, unfair trade practices etc., through a 3-tier quasi-judicial redressal machinery at national, state and district levels.

6. A complaint upto Rs. 5 lakh can be filed in the Consumer Disputes Redressal Forum (District Forum), between Rs. 5 lakh to Rs. 20 lakhs in the Consumer Disputes Redressal Commission (State Commission) and complaint above Rs. 20 lakhs can be filed in the National Consumer Disputes Redressal Commission (National Commission). The National Commission and State Commissions have appellate and revisionary jurisdictions also (as amended in June 1993).

7. The provisions of the Act are compensatory in nature.

8. The procedure for filing the complaint above redressal agencies is very simple. A complaint can be filed on a plain paper in writing. The assistance of lawyer is not required. There is no fee for filing a complaint.

All the provisions of the Consumer Protection Act, 1986 came into force on 1-7-1987 throughout the country except Jammu and Kashmir, which enacted its own legislation in this field. All the States/UTs have constituted the state level consumer protection council. The Central Consumer Protection Council was formed on 1-6-1987. The council has since been reconstituted w.e.f. 23-11-1995. So far, 16 meetings of the Central Council have been held.

The National Commission started functioning on 27-12-'88 with Justice Mr. V. R. Eradi as President. Till now 31 State Commissions

ions and 457 District Forums have started functioning.

Amendment: On 18th June, 1993, the Government issued an ordinance to amend CPA to make it more effective and people-oriented which is very similar to the Consumer Protection (Amendment) Bill, 1993. It provides:

◆ For enabling consumers and consumer organisations to file complaints in respect of goods whose use could be hazardous to life and

Mounting backlog

The consumer grievances redressal forums were established to provide expeditious justice to aggrieved parties, but they seem to be taking the torturous path of judiciary. By allowing 200,000 pending cases to pile up for precisely the same reasons responsible for the country's huge backlog of litigation, the forums are defeating the spirit of the Consumer Protection Act, 1986.

Most of the problems originate from the legislation; which is why the Committee on Subordinate Legislation has suggested changes in the rules framed under the Act. The Consumer Protection Rules, 1987, for instance, stipulate that the forums "shall" dispose of cases within 90 days "as far as possible". Delays, as a result, have become the rule and not the exception.

And though the Rules don't provide for even a second adjournment, there are cases where up to 30 have been granted for no mitigating reason. These loopholes have turned the consumer forums into lawyers' playing-fields, who are instrumental in seeking endless adjournments. The idea behind the Act was to enable consumers, who felt cheated by a manufacturer or a service provider, to get quick justice without being mired in a prolonged legal process. But it has remained a dream, what with the complainants being dragged to the High Court and even the Supreme Court.

The decisions of consumer forums should be enforceable like civil court decrees and should be brought under the purview of Article 323(B) so as to exclude them from the writ jurisdiction of the High Courts.

The Government must take a second look at the Act to remove its deficiencies so that consumer rights are protected. By letting consumer forums drown in a sea of procedures and pending complaints, the Government will only be aiding errant corporations.

safety like drugs and food products being sold after expiry dates.

◆ Against traders who adopt restrictive trade practices.

◆ On behalf of a group of consumers with a common interest.

◆ In respect of services relating to housing.

◆ Self employed persons could seek redressal in respect of the goods purchased by them to earn their living.

◆ For enlarging the scope of the Act, the redress fora have also been conferred additional powers to order withdrawal of goods likely to endanger life and safety.

◆ Removal of deficiency from services and to award costs.

◆ For a limited period of one year from filing complaints and empowers the State Government to constitute more than one forum in a district, wherever necessary.

◆ For constitution of selection committees at the state and national level and to choose non-judicial members of redressal agencies.

Consumer Welfare Fund: A Consumer Welfare Fund was instituted on the Consumer Day, March 15, 1994.

The announcement of the formation of the Fund was made by Civil Supplies Minister A.K. Antony while giving away the national awards for consumer protection in New Delhi.

The Consumer Welfare Fund consists of the amount of excess excise or customs duties which are not refundable to manufacturers or importers.

The money thus accruing to the fund would be used for promoting the welfare of consumers and the objective of the fund was to strengthen the consumer movement in the country and to assist voluntary organisations in spreading consumer education.

Antony also formally invited applications from voluntary consumer organisations for availing assistance under the fund.

The total quantum of assistance on an individual application should not exceed Rs. 5 lakh. However, larger assistance could be considered in very exceptional cases.

The applicant would be required to meet 10 per cent expenditure from his own resources. In exceptional cases this also could be relaxed.

For the first time in 1994 the national women's awards for consumer protection have been distributed. The first, second and third prize winners got a cash award of Rs. 20,000, Rs. 15,000 and Rs. 10,000 respectively along with certificates of merit.

Defence

The year 1995 saw unprecedented arm-twisting and indirect pressure by developed nations on other nations in order to halt proliferation of missiles. But the signing of new NPT accord and breaking its recommendations by countries like China, France and US, besides rearming of Pakistan by amending the Pressler's law by US has put lot of doubt in their real intentions. In the light of diminishing defence budget, the need for judicious use of scarce resources and increased dangers to India's security have caused the resumption of tests of Agni, the intermediate range ballistic missile. Of the 3 launches of Agni, two have been successful. The last flight in February, 1994, met with all the mission objectives. However, by any yardstick, no project could be completed by just three tests. Several more trials are to be conducted before it to be considered a weapon.

Most of the missiles are part of the 10 year national plan to equip the services with indigenously built state-of-the-art systems and replace imported, but less sophisticated hardware.

The 10 year programme for indigenisation include MBT Arjun, The Prithivi, Trishul and Akash missiles, Rajendra, the phased array radar and Light Combat Aircraft (LCA).

LCA is a 8-tonne state-of-the-art multi-role combat aircraft. India's premier indigenously built fighter rolled out on Nov.17. A second prototype will begin flying in 1997. It has been designed to have considerable agility, rapid acceleration, good runway performance and a high weapons load. It can turn around 20 degrees per second and can engage in air battle in

a 600 km combat zone. The designed load capability, upto 4,000 kg in weight, of LCA is double to that of MIG-21. It can carry laser guided bombs, IR and radar guided missiles, anti-ship missiles, cluster bomb dispensers, EV pods and so on. At present the LCA development cost at 1990 prices amounts to Rs. 10,000 crores. The forex element is 75%. The LCA is likely to be integrated into IAF by the year 2002.

According to Dr. Abdul Kalam, Scientific Advisor to the Defence Minister, the LCA project has many spin-offs, viz, development of advanced materials like carbon composites, platinum and titanium and could find direct application in biomedical and sports goods manufacture, while avionic systems could be extended to remote sensing and cancer detection, and computer aided design and manufacture could have a large application potential in commercial manufacturing industry.

The Arjun tank, the state-of-the-art flagship of Indian armour, has been cleared for mass production. The production of the initial 100 tanks is to begin in December 1999. The success of the 20,000 km long, summer trials in the Mahajan ranges in the Rajasthan desert, the riverine stretches of Punjab and mountainous areas of Jammu and Kashmir has led to the decision. The tank is powered by an imported German diesel engine and can move in the battlefield at 72 kmph. "Powerful" is another feature, allowing the vehicle to travel at 22 to 25 km in rising temperatures between 42 and 49° C. Sand-dune of about 35° angle can be negotiated in deteriorated conditions. It has laser range find

Commissioned Ranks

Army

Field Marshal
General
Lieut. General
Major General
Brigadier
Colonel
Lieut. Colonel
Major
Captain
Lieutenant
Second Lieutenant

Navy

Admiral of the Fleet
Admiral
Vice Admiral
Rear Admiral
Commodore
Captain
Commander
Lieut. Commander
Lieutenant
Sub Lieutenant
Acting Sub Lieutenant

Air Force

Marshal of the Air Force
Air Chief Marshal
Air Marshal
Air Vice Marshal
Air Commodore
Group Captain
Wing Commander
Squadron Leader
Flight Lieutenant
Flying Officer
Pilot Officer



computer-based firing system, 12.7 mm machine gun, 12.7 mm machine gun, thermal sighting equipment and so on.

Prithvi has a range of 150 km to 250 km. While the Army has ordered 75 of such missiles of 150 to 200 km range, the Air Force has asked for 25 of the 250 km range. The 8.5-metre short-range surface-to-surface missile *Prithvi* has been inducted into the Indian army after successfully completing its user trials in June, 1994. It is presumed that the missile has already been deployed in the western front as a deterrent against Pakistan's Hatf-I and Hatf-II missiles. *Prithvi*, designed for quick manoeuvrability and wartime efficiency.

Trishul is a surface-to-air missile based on the Russian SAM series.

Nishant, earlier called *Falcon*, is a remotely piloted vehicle, intended for real-time battlefield surveillance and reconnaissance. It is capable of carrying a 45-kg payload, a cruising speed of 150kmph and fly for more than 5 hours. Its control can be programmed.

Pinaka (named after Lord Shiva's mighty bow) The indigenously developed multi-barrel rocket system has been successfully carried out. These mobile weapons systems are characterised by the capability to deliver saturation fire over targets not engagable by guns. *Pinaka* is a weapon system having 12 solid propellant rockets configured for launch from a TATRA eight wheeled truck. It has a range of 40 km and can deliver a variety of war-heads—pre-fragmented, incendiary or sub-munition. The rockets can be fired single or in a salvo lasting less than a minute. *Pinaka* also has support

systems in the form of a replenishment vehicle and a command post vehicle.

Defence scientists have developed under the Integrated Guided Missile Development Programme a multi-function Phased Array Radar (PAR) critical for the surface-to-air missile *Akash* and the third generation anti-tank missile, *Nag*. The PAR is based on electronically-steerable antenna. The sophisticated radar "*Rajendra*" is capable of surveillance, target designation and simultaneous tracking of multiple targets (over 100 tar-

gets at a time).

Akash is a multi-target medium range (25 km.) surface-to-air (guided) missile (APAR tracks and automatically launches missiles). *Akash* system has 2 vital components on the ground, the PAR and the automatic C-Cubed system.

Nag is a third-generation anti-tank missile system for deployment on the tracked vehicles and helicopters. First generation systems are usually wire guided missiles; second generation systems require tracking and the third generation system seeks and destroys the target. The target acquisition system consists of a thermal sight and a laser range finder.

The Organisation The authority of the Supreme Commander of the Armed Forces is vested in the President of India. Responsibility for national defence, however, rests with the cabinet. All important issues having a bearing on defence are decided by the Cabinet Committee on Political Affairs which is presided over by the Prime Minister. The Defence Minister is responsible to the Parliament for all matters concerning the Defence Services.

The Ministry of Defence is headed by the Minister of Defence who is of Cabinet rank. He is assisted either by Ministers of State for Defence or Deputy Defence Ministers. The Chief financial authority is the financial adviser to the Ministry of Defence. The Defence Ministry comprises of four departments: (i) Department of Defence. (ii) Department of Defence Production. (iii) Department of Defence Supplies. (iv) Department of Defence Science and Research.

The Ministry is directly responsible for the defence of India and for provisioning and ad-

ministering the Armed Forces, viz. Army, Navy and Air Force.

The main auxiliaries are: (i) The Territorial Army; (ii) Coast Guards; (iii) Auxiliary Air Force; (iv) National Cadet Corps comprising wings of the Army, Navy and Air Force.

Considering the size of the country, its very long borders and coastline, and also the strategic position it occupies in South Asia and the Indian Ocean, India has to maintain comparatively large defence forces. Today India has the fourth largest army in the world, the fifth largest air force and the seventh largest navy.

The Armed Forces consists of the three main services, The Army, the Navy and the Air Force, each of which is headed by their respective *Chief of Staff* viz., the Chief of the Army Staff, The Chief of Naval Staff and the Chief of Air Staff who are of the rank of General and equivalent. These three chiefs of staff constitute the chiefs of staff committee, the chairmanship of which rotates among the three service chiefs according to seniority. The Committee is assisted by sub-committees dealing with specific problems such as planning, training, communication etc.

The Army Headquarters is located in New Delhi. The Chief of the Army Staff is assisted by the following principal staff officers: (i) Vice Chief of Army Staff; (ii) Deputy Chief of Army Staff; (iii) Adjutant General; (iv) Quartermaster General; (v) Master-General of Ordnance; (vi) Military Secretary; (vii) Engineer-in-Chief.

The Army is organized into the following Commands: (i) Western; (ii) Eastern; (iii) Northern; (iv) Southern; (v) Central.

Each command is commanded by a General Officer Commanding in Chief of the rank of Lieutenant General. The Command is further divided into Areas and Independent Sub-areas, commanded by Major General and Brigadier respectively.

The Army consists of a number of arms and services. These are: (i) The President's Body Guard; (ii) Armoured Corps; (iii) Regiment of Artillery; (iv) Corps of Engineers; (v) Corps of Signals; (vi) Military Nursing Service; (vii) Army Medical Corps; (viii) Corps of Electrical and Mechanical Engineers; (ix) Remount & Veterinary Corps; (x) Military Farm Services; (xi) Army Education Corps; (xii) Intelligence Corps; (xiii) Corps of Military Police; (xiv) Army Physical Training Corps; (xv) Pioneer Corps; (xvi) Army Postal Service Corps; (xvii) Defence Security Corps.

The Territorial Army is a voluntary part-time citizen's force consisting of persons who are not professional soldiers but civilians who are eager to play a role in the defence of the country. All Indian nationals between 18 and 35 years of age are eligible to join it. The T.A. comprises of infantry, engineering and medical units. The Ecological Task Force of the Territorial Army has been doing commendable job in the areas of their deployment.

Rashtriya Rifles Since late 1970s the Army has been increasingly employed in anti-militant operations, and for the maintenance of law and order. This has further increased since the late 1980s and early 1990s. Over stretched deployment of the Army on such tasks has been at the cost of its operational training for war, with the risk of degradation of its response capability to external attack.

National Cadet Corps NCC is a youth organization, open to students of academic institutions. It aims at development of leadership qualities, character and spirit of sportsmanship, co-operation and service. It is a voluntary organization and neither officers nor cadets are under any obligation or compulsion to enter active military service.

NCC consists of 3 divisions, Senior, Junior

Tactical surface-to-surface missiles

Country Missiles	Russia Tockha	China M-11	USA ATACMS	India Prithvi	Pakistan Hatf-II
Range km.	120	300	135	150	280
Length metres	6.4	11.25	3.98	8.5	9.75
Width metres	0.65	0.88	0.61	1	0.82
Payload kg.	482	500	450	1,000	500
Weight kg.	N.A	6,350	1,670	4,500	5,500
Guidance	Inertial Platform	Inertial + terminal	Inertial + Update	Inertial + terminal	Inertial
Propulsion	Solid	Solid	Solid	Liquid	Solid

Source: Duncan I. Lennon ed. *Jane's Strategic Weapon Systems* (Coulson, Surrey, Jane's Information Group, 1990); *The Artillery Journal* 1990.

Defence Expenditure

The total defence expenditure

Defence	92-93	93-94	94-95	95-96
Air Force	5175	5998	6597	6552
Army	9365	11803	12433	13760
Navy	2021	2695	29365	3389
Total	17,581	21,844	23,544	25,500

(Rs. in crores) Source: 1994-95 Ministry of Defence Report

Given India's size and security concerns, the outlay on Defence continues to be one of the lowest among the neighbouring countries. The department-wise break-up in percentage terms of the defence expenditure Army, Air Force, Navy, R&D and DP&S spends 53.96%, 25.69%, 13.29%, 5.28% and 1.76%.

India's Defence debt

Debt	1990	1991	1992	1993
Russia	9.9	11.6	9.2	9.2
GCA debt	2.3	2.0	1.6	0.9
Total external	75.9	83.9	85.3	90.4

(in billion dollars)

According to SPs Military Yearbook, 1995, there has been a 213 % increase in defence items exported in the last three years due to liberalisation, marketing efforts through Indian missions and other export agencies. In '92-93, defence exports were Rs. 640 million. In 93-94, exports rose by 95.3% to Rs. 1.25 billion. The target for 1994-95 is Rs. 2.0 billion, which is a 60% increase over the previous year.

and Girls with Army, Navy and Air Wings. The authorized strength of the senior division is 4 lakhs, Junior Division 7 lakhs and girls 62,000 among the three wings of the Armed Forces.

The Navy The Indian Navy is charged with the responsibility of defending the nation's maritime interests, which include the 7600 kms coastline, outlying island territories, the Exclusive Economic Zone (EEZ) of 2.2 million sq. kms., offshore oil and seabed resources, sea lanes of communication, fishing interests, port and harbours, shipbuilding industry and infrastructure to sustain the mercantile marine.

The Headquarters of the Navy is located in New Delhi. The Chief of Naval Staff is assisted by the following principal staff officers: (i) Vice Chief of Naval Staff; (ii) Chief of Material; (iii) Deputy Chief of Naval Staff; (iv) Chief of Personnel; (v) Controller of Warship Production and Acquisition; (vi) Chief of Logistics.

The Navy has three Naval Commands commanded by Flag Officers Commanding-in-Chief of the rank of Vice Admiral. They are: (i) Western Naval Command at Bombay; (ii) Eastern Naval Command at Vishakhapatnam; (iii) Southern Naval Command at Cochin.

There are two fleets, the Western and the Eastern, commanded by Flag Officers Commanding, of the rank of Vice-Rear Admiral. There are also Flag Officers commanding Goa Area and Andaman & Nicobar Islands. In addition, there are Naval Officers-in-Charge of Bombay, Madras and Calcutta.

The indigenous path continues to be the main stay of the Navy's acquisition programme

and the blueprint for development of the Navy has, therefore, been firmly anchored on its ability to indigenously design and construct modern warships and submarines. As a part of the programme destroyer 'Bombay' has been launched at Mazagon Docks, and frigate 'Beas' has been launched at GRSE, Calcutta in 1994. The second indigenously constructed submarine, 'INS Shankul' has been commissioned in 1994.

The two fleets consist of the aircraft carriers INS Vikrant, and the newly acquired INS Viraat, a number of frigate squadrons comprising modern anti-aircraft, anti-submarine and general purpose ships, missile equipped frigates/destroyers, a squadron of anti-submarine patrol vessels, several mine sweeping squadrons, submarines, a submarine depot ship, a submarine rescue vessel, landing ships capable of carrying tanks and personnel, and several fast attack crafts carrying surface-to-surface missiles.

A naval organization functions at Port Blair to ensure the security of the Bay Islands.

The Navy took over the responsibility of Maritime Reconnaissance from the IAF and has acquired suitable MR aircraft for the purpose.

The navy has a sizeable Air arm with various types of fixed wing aircraft and helicopters such as Super Constellation, IR-38, Alizes, Sea Harriers, Islanders, Sea Kings, Alstutter and KA-25. These are used in various roles such as Maritime reconnaissance, anti-submarine work, search and rescue, logistic functions such as lifting troops and supplies, air interception, ground support and anti-shipping.

The Coast Guard was constituted on August 19, 1978 as an Armed Force of the Union for ensuring the security and protection of the maritime zones and other national interests. The Coast Guard forms a part of the Defence Ministry. Its headquarters are at New Delhi and is headed by a Director General. It has three regional headquarters at Bombay (Western region), Madras (Southern region) and Port Blair (Andaman and Nicobar Islands).

The coast guard fleet comprises ships such as KUTHAR (ex-navy), VIKRAM, VIJAY, VEERA (indigenously built), a number of offshore patrol vessels and a number of inshore patrol vessels.

The **Indian Air Force** has completed 63 years of dedicated service to the nation. It maintains a balance in its air defence, air interdiction, reconnaissance, and offensive air support capabilities. It is also committed to provide aid to civil authorities during natural calamities, provide prompt and expeditious logistic support and help in search, rescue and relief operation during flood. AF is organized into five operational Commands and two support Commands. These are: (i) Western Air Command; (ii) Eastern Air Command; (iii) Southern Air Command; (iv) Central Air Command; (v) South-Western Air Command; (vi) Training Command; (vii) Maintenance Command.

The Air Headquarters is located in New Delhi. The Chief of Air Staff is assisted by the following Principal Staff Officers:

(i) Vice Chief of Air Staff; (ii) Deputy Chief of

Air Staff; (iii) Air Officer in Charge, Administration; (iv) Air Officer in Charge, Personnel; (v) Air Officer in Charge, Maintenance.

At the time of partition in 1947, India's share of the Air Force was less than 10 full squadrons. Today there are more than 50 squadrons comprising combat, transport, liaison and reconnaissance aircraft/helicopters. There are more than 1000 aircraft and helicopters of which the main types are Canberra, Hunter, Ajeet, Kiran, Chetak, Mig-21, 23, 25, 27 and 29, Sec-7, An-32, Il-76, Mi-8, Jaguar and Mirage-2000. In addition to purchases from abroad, India also designs and makes her own aircraft.

In matters like medical services, public relations, etc. which are common to all three services, they are served by *Inter-Service Organizations* which function directly under the Ministry of Defence. Some such important organizations are:

(1) Armed Forces Film and Photo Division, (2) Armed Forces Medical Services, (3) Defence Lands and Cantonments, (4) Directorate of Public Relations, (5) Historical Section, (6) Joint Cipher Bureau, (7) Ministry of Defence Library, (8) National Defence College, (9) Service Sports Control Board, (10) Videshi Bhasha Vidyalaya.

Some of the noteworthy inter-service training establishments are: (1) Institute of Defence Management, (2) Institute of Armament Technology, (3) Defence Services Staff College, (4) National Defence Academy.

Armed Forces Medical Services comprise Army Medical Corps, Army Dental Corps and Military Nursing Service under the overall control of Director General, Armed Forces Medical Services.

Armed Forces Medical College, Pune trains civilian candidates for the MBBS course of Pune University. 105 boys and 25 girls are admitted every year. Candidates who receive stipends number 110. In addition 10 seats are reserved for SC and ST candidates. All boys have to serve as Permanent Commissioned officers. Others may serve only 7 years. Postgraduate specialization courses are also provided at Pune.



Peacekeeping Operation: Somalia

Training in medical problems peculiar to aviators is given at the Institute of Aviation Medicine at Bangalore and those peculiar to Navy such as those special to divers and submariners, at the Institute of Naval Medicine, Bombay.

Cantonments were established under the Cantonments Act, 1924 with the purpose of accommodating Armed Forces personnel and safeguarding their health, welfare and security. Since the cantonments had a significant civilian population, it was found necessary to provide for local self-government of those areas. There are 62 cantonments in India.

Defence Production activities are broadly divided into two groups viz. departmentally run Ordnance Factories and Defence Public Sector Undertakings. Whereas the arms, ammunition, tanks, vehicles, etc. are made in the Ordnance Factories, the Defence Public Sector Undertakings are geared to produce ships, submarines, aircraft, earth moving equipment, machine tools, missiles, sensors, communication equipment etc. The Ordnance Factories and Defence PSU s have an ongoing programme of indigenisation.

Public Sector Undertakings There are 8 PSUs under the administrative control of the Ministry of Defence (Department of Defence Production). They are:

(1) Hindustan Aeronautics Ltd. (HAL), (2) Bharat Electronics Ltd. (BEL), (3) Bharat Earth Movers Ltd. (BEML), (4) Mazagon Docks Ltd. (MDL), (5) Garden Reach Shipbuilders and Engineers Ltd. (GRSE), (6) Goa Shipyards Ltd. (7) Bharat Dynamics Ltd. (BDL), (8) Mishra Dhatu Nigam Ltd. (MIDHANI).

Mishra Dhatu Nigam Ltd. manufactures the special alloys and metals required by aeronautics, space and electronics industries.

The eight Defence PSUs have a total work force of 109,000 out of which HAL has the maximum (44,000) and BDL has the least (1600).

Research & Development The R & D activities are carried out in 45 laboratories/establishments and a few field units located in different parts of the country. The organization is headed by the Director General, Research & Development (DGR & D) who is also the Secretary to the Govt. for Defence Research. He is assisted by three chief controllers.

India's contribution to UN Peacekeeping Operations India has always been an important contributor to UN Peace Keeping Missions. India has contributed troops/military to UN Peace Keeping Missions in Gaza, Lebanon, Cyprus, Korea, Yemen, Namibia, Iran-Iraq, Iraq-Kuwait, Angola, and Central America in the past. In the recent years, India has deputed contingents to Cambodia, Mozambique, Somalia, Rwanda and Military Observers in Liberia. There have been number of Force Commanders from India to UN Missions in the past such as UNEF-I, Namibia, Yugoslavia, UNAMIR-II, Rwanda, UNOSOM-II and soon.

India by virtue of its neutral non-aligned stand and long standing professional Army is increasingly in demand to provide troops for Peace Keeping Operations. The UN Secretary General during his visit to India in 1994 appreciated the performance of Indian troops.

Space Research

The ISRO space programme had come a long way from a modest beginning with the Rohini sounding rockets launch on Nov 21, 1963. The launch vehicle development programme shifted from Thumba to the Sriharikota launching station in 1969. The ISRO had experimented three generation launch vehicles with the PSLV-D3 being the eleventh ever since the critical launch vehicle programme began.

The launch vehicle development programme has been 50 per cent successful compared to the satellite development programme of ISRO which had been almost cent per cent successful. The ISRO's maiden venture in developing satellite launch vehicle was itself a failure with the SLV-3 failing due to malfunctioning of first

stage control system in August 1979. Undeterred by it, the ISRO went in for the second launch of SLV-3 an year later which proved successful with placing of a 35-kg Rohini satellite in orbit. However the SLV-3 launched in May 1981 was again a failure with the satellite life being aborted in just days due to low attitude problems.

The developmental flight of SLV-3 attempted in 1983 brought happy tidings for the ISRO as the satellite sent in more than 2,500 pictures.

The next two programmes in satellite launch vehicles were failures. While the Augmented Satellite Launch Vehicle (ASLV) launched in 1987 had problems in the thrust power due to malfunctioning in first stage motor, its successor sent in July 1988 was a miserable failure as it could last only for about 150 seconds before it

met its watery grave in the Bay of Bengal. The anomaly was again cited in the first stage motor.

Taking its failures as stepping stones to success, the ISRO launched the ASLV-3 in May 1992 which hoisted the Stretched Rohini Satellite (SROSS). Its successor launched in May 1994 was a success. However, the PSLV-D1 predecessor to the October 15 rocket sent in September 1993 had failed.

The Vikram Sarabhai Space Centre (VSSC) in Thiruvananthapuram acts as a lead centre; major responsibilities for design and development of the PSLV were shared by the Liquid Propulsion Systems Centre also at Thiruvananthapuram and the SHAR Centre in Sriharikota.

The ISRO inertial systems unit had developed the navigation systems for the PSLV while the ISRO telemetry, tracking and command network (ISTRAC) here was responsible for the telemetry and tracking support to the mission.

Some major facilities established included the liquid stage test facilities at Mahendragiri in Tamil Nadu, large solid booster preparation and test facilities and a new launch complex including the giant mobile service tower at Sriharikota, a new complex at Valiamala near Thiruvananthapuram where facilities had been established for integration and checkout, large scale structural testing, testing separation and jettisoning systems and control components development facilities.

The Antrix Corporation of the Space Department had already signed a commercial agreement with the EOSAT of the US for IRS-1C data reception and distribution to the world community. The ISRO and the Intelsat (International Cooperative for Satellite Communications), have signed a \$100 million, 10-year agreement for leasing some of the capacity of the Indian-built INSAT-2E that will be launched in the last quarter of 1997. This is the first agreement of its kind that the 135 nation Intelsat had signed with any outside agency. The Intelsat intends to serve the Asia-Pacific region with the capacity it had leased on the INSAT-2E. Intelsat is the leading provider of international, regional and domestic telephone, television and business communications services including video, tele-conferences, facsimile, data and telex. Its anticipated revenue in 1994 was \$709 million. INSAT-2E will be the first satellite to be used by Intelsat which it does not own. INSAT is one of the country's largest domestic satellite systems in the Indian Ocean region with INSAT-1D, INSAT-2A, and 2B presently in the orbit.

ISRO in a serious bid to tap the vast marine resources and to understand the enormous influence of the ocean on global weather predicting patterns, has begun work on launching an exclusive oceanographic remote sensing sat-

ellite christened 'Oceansat'. Oceansat is scheduled for launch in late 1996 and early 1997.

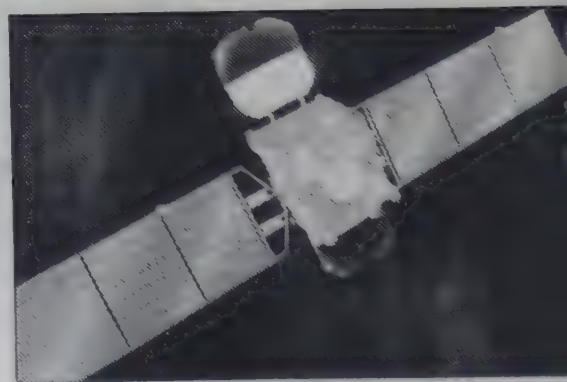
INSAT Master Control Facility (MCF) The MCF at Hassan is a multi-mission control centre providing TTC services for INSAT series of spacecraft. It is also responsible for initial orbit raising of the spacecraft and payload testing. MCF is an integrated facility consisting of four Satellite Control Earth Stations supporting continuous monitoring of Search Rescue signals, VHRR and DCP downlinks.

The Spacecraft Control Centre of MCF is the nerve centre of the entire spacecraft operations and consists of base-band equipment, computers, recording systems, timing systems, DCP and VHRR checkout facilities, etc.

The Satellite INSAT established in 1983 with the commissioning of Insat-1B, is a joint venture of the Department of Space, and Department of Telecommunications, India Meteorological Department, All India Radio and Doordarshan. DOS is responsible for the establishment and operation of the INSAT space segment.

The continued satisfactory performance of the two indigenously built multipurpose satellites, Insat-2A launched in July 1992 and Insat-2B launched in July 1993, together with Insat-1D, the last of the Insat-1 series, launched in 1990, has enabled the INSAT system in providing uninterrupted services to the country in the vital areas of telecommunications, TV broadcasting, meteorology, disaster warning and distress alert. Three more satellites in the INSAT-2 series, namely, INSAT-2D and 2E, are now under development. INSAT-2C incorporate advanced features such as 12 C-band transponders, 6 extended C-band transponders, 3 Ku-band transponders, 1 Ku-band beacon, 1 S-band BSS transponder, 1 CxS band MSS forward transponder and 1 SxS return transponder.

IRS The 2 Indian remote sensing satellites IRS-1A launched in March 1988 and IRS-1B launched in August 1991, together with IRS-P2



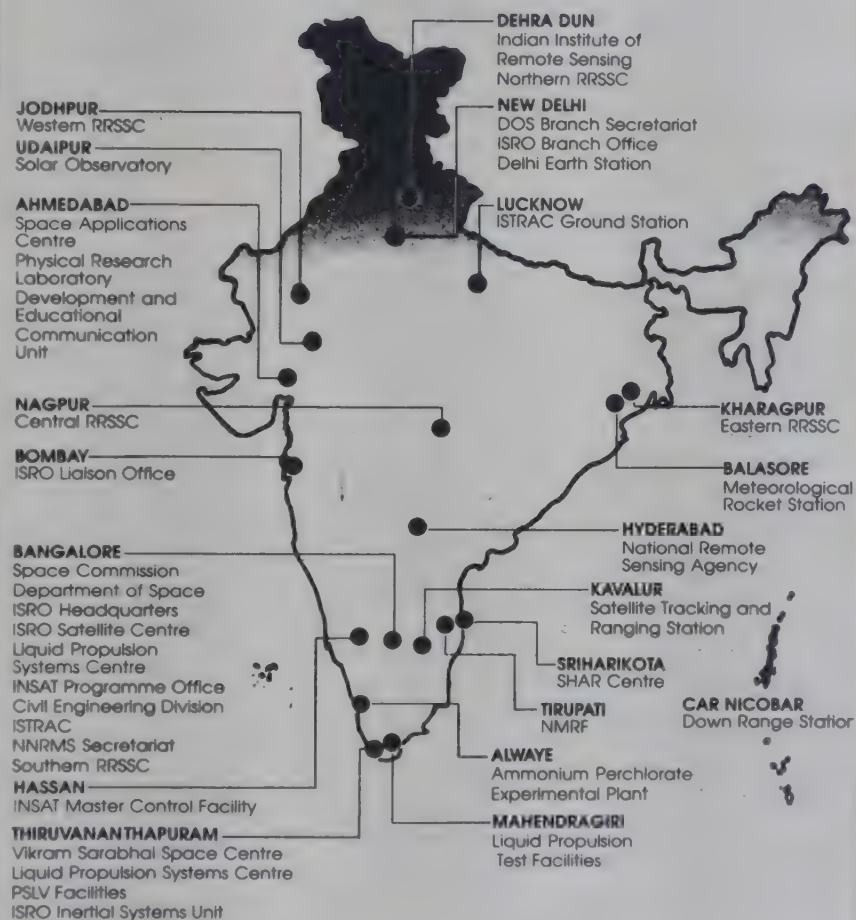
INSAT-2C

launched by India's own launch vehicle, PSLV-D2, in Oct. 1994, have become the mainstay of the national resources management system. IRS-1A and 1B carry two types of cameras, LISS-I and LISS-II with a swath of 148 km. IRS-P2 has LISS-II cameras while IRS-1C and IRS-1D satellites incorporate advanced features such as the LISS-III camera, a Panchromatic camera (PAN) and a Wide Field Sensor (WIFS) enabling better spectral resolutions thereby enhancing the application potential of these satellites. IRS-P3, aboard PSLV-D3 carry a Modular Opto-electronic Scanner (MOS), WIFS and an X-ray astronomy payload.

PSLV PSLV is technologically the most challenging endeavour of the Indian space programme till date. With a lift-off weight of 283 tonne, PSLV, measures 44m in height. The first stage of PSLV, rated as the third largest solid booster in the world, carries 129 tonne of Hydroxyl Terminated Poly-Butadiene (HTPB) based solid propellant. The booster develops a maximum thrust of 4,500 kN. The first stage thrust is augmented by six strap-on motors, employing HTPB-based solid propellant. The second stage employs a liquid propellant engine carrying 37.5 tonne of Unsymmetrical Di-Methyl Hydrazine (UDMH) as fuel and Nitrogen tetroxide as oxidiser. The third stage motor employs HTPB-based solid propellant and the fourth and terminal stage of PSLV has twin engine configuration employs 2 tonne of liquid propellant (Mono-methyl hydrazine). PSLV has a metallic bulbous heatshield, 3.2m in diameter.

GSLV capable of placing 2,500 kg class of communication satellites into geosynchronous transfer orbit, is mainly derived from the modules developed for PSLV. It is a three stage

SPACE CENTRES AND UNITS IN INDIA



vehicle, the first stage having 129 tonne solid propellant core motor with four liquid propellant strap-ons with a loading of 40 tonnes each. The second stage is a liquid propulsion system with a propellant loading of 37.5 tonne as in PSLV and the upper (third) stage is a restartable cryogenic engine with a loading of 12 tonne using liquid oxygen and liquid hydrogen. GSLV will have a 3.4m diameter heatshield. The first developmental launch of the GSLV is scheduled in 1997-98, using a Russian cryogenic engine.

Cryogenic Engine Indian space scientists now rivet all attention to an indigenous cryogenic engine and successful launch of the more advanced geosynchronous satellite launch vehicle (GSLV) in 1997 to put 2000-kg satellites into space.

ISRO has already initiated design and devel-

opment of a GSLV which incorporates the first and second stage motors of PSLV, and four strap-on liquid boosters derived from the second stage, besides a cryogenic upper stage that uses liquid oxygen and liquid hydrogen.

National Natural Resources Management System (NNRMS) for which the DOS is the nodal agency, has the active participation of various State and Central Government Dept./Agencies. The availability of data from IRS-P2

satellite launched on Oct. 15, 1994 in addition to the data from IES-1A and IRS-1B, has enabled taking up a number of nationwide remote sensing application projects. The activities during the year included regular monitoring and estimation of crop acreage and yield of wheat, rice, sorghum, groundnut, cotton, etc.

GRAMSAT Various experiments/demonstrations conducted using INSAT in the last few years, have led to the last few years, have led to

Milestones

1962: Indian National Committee for Space Research (INCOSPAR) formed by the Department of Atomic Energy and work on establishing Thumba Equatorial Rocket Launching Station (TERLS) started.

1963: First sounding rocket launched from TERLS, Nov 21.

1965: Space Science & Technology Centre (SSTC) established in Thumba.

1967: Satellite Communication Earth Station set up at Ahmedabad.

1968: TERLS dedicated to the UN, Feb 2.

1969: The Indian Space Research Organisation (ISRO) constituted for peaceful exploration space.

1972: The department of Space and the Space Commission constituted. Airborne remote sensing experiments committee for surveying earth resources.

1972-76: Air-borne remote sensing experiments.

1975: The first Indian satellite "Aryabhata" launched from the erstwhile Soviet Union on April 19.

1975-76: Satellite Instructional Television Experiment (SITE) conducted.

1977: Satellite Telecommunication Experiments Project (STEP) carried out.

1979: The second Indian satellite "Bhaskara-I" launched from the erstwhile Soviet Union on June 7.

1980: The indigenous satellite launch vehicle (SLV-3) puts the 35-kg Rohini satellite into orbit from Sriharikota range on July 18.

1981: The SLV-3 launches the second Rohini satellite from Sriharikota range on May 31.

"Apple", India's first experimental geo-stationary communications satellite launched by Ariane rocket from Kourou in French Guyana on June 19. Bhaskara-II (satellite for earth observation) hoisted from the erstwhile USSR on Nov. 20.

1982: Insat-1A, the first multipurpose satellite procured from the US, launched on April 10. Deactivated due to propellant depletion on September 6.

1983: The SLV-3 launches the 35-kg Rohini satellite from Sriharikota on April 17.

Insat-1B satellite, the second multi-purpose satellite, hurled into space by the US space shuttle Challenger on August 30.

1984: The first joint Indo-Soviet manned space odyssey begins on April 3. Sq Ldr Rakesh Sharma: the first Indian to undertake a voyage in space.

1987: First developmental launch of ASLV on Mar 24. Flight unsuccessful.

1988: The first indigenously built remote sensing satellite IRS-1A jettisoned by the erstwhile Soviet "Mostok" rocket from Baikonur on March 17. Insat-1C, the third multipurpose satellite, launched Jul 21 but it was abandoned following a power anomaly in November 1989. Second developmental ASLV flight-unsuccessful, July 21.

1990: Insat-1D the last in the series of first generation Insat satellites, hoisted into space by the US Delta rocket from the Eastern Space and Missiles Centre, Florida, on June 12.

1991: IRS-1B, the second remote sensing satellite, launched by the erstwhile Soviet "Mostok" rocket from Baikonur cosmodrome on Aug. 29.

1992: The Augmented Satellite Launch Vehicle (ASLV) successfully launched from Sriharikota on May 20. The ASLV launches the 150 kg SROSS-C (stretched Rohini satellite series) satellites into near-earth orbit.

Insat-2A, the first indigenously built multi-utility satellite, hurled into space by Ariane vehicle from Kourou on July 10.

1993: Insat-2B, the second indigenously fabricated multipurpose satellite placed in space, by Ariane rocket from Kourou on July 23. First developmental launch of IRS-1E aboard PSLV, Sept 20-unsuccessful.

1994: ASLV-D4 successfully launched from Sriharikota injecting into low earth orbit the SROSS C-2 satellite on May 4. PSLV-D2 successfully launched from Sriharikota hurling into polar synchronous orbit 870 kg remote sensing satellite IRS-P2 on October 15.

the concept of a dedicated satellite, GRAMSAT, tailored to meet the basic requirements of rural areas for disseminating culture and region-specific knowledge on health, hygiene, environment, family planning, better agricultural practices, etc. The GRAMSAT could incorporate features for providing continuing education for special social groups, industrial workers and

others. GRAMSAT is proposed to include 6 to 8 high-powered C-band transponders and 2 to 3 very high-power Ku-band transponders.

The launch and commissioning of INSAT-2C (by Ariane from Kourou in French Guyana) and IRS-1C (by Russian Molniya vehicle) in 1995 will precede PSLV-D3's launch scheduled for early 1996.

Education

Education is integrally linked with the development process. There has been considerable progress in this sphere. The literacy rate increased from 18.3% in 1951 to 52.2% in 1991. The number of primary schools increased from 0.209 million in 1950-51 to 0.573 million in 1993-94. The number of school increased from 0.23 million in 1950-51 to 0.82 million in 1992-93. The enrollment in schools increased from about 24 million in 1950-51 to about 167 million in 1992-93. Since Independence the gross enrollment ratios have gone up many times and have reached 105.7% in classes I-V and 67.5% in classes VI-VIII. The student enrollment in universities and colleges increased from about 0.2 million at the time of independence to 5.0 million in 1992-93.

A major concern is the gender-wise difference in literacy. The female literacy rate was 39.3% as 64.1% for male in 1991. There are also wide variations among States, ranging from 86.2% female literacy in Kerala to 20.4% female literacy in Rajasthan in 1991. A similar situation prevails in the case of male literacy. The literacy rate for Scheduled Castes increased to 37.4% in 1991 from 21.4% in 1981. Among the Scheduled Tribes, it increased from 16.4% in 1981 to 29.6% in 1991.

Substantial progress has been made in the area of primary education. The Gross Enrolment Ratio (GER) in the Primary Stage (classes I-V) increased from 42.6% in 1950-51 to 104.5% in 1992-93 and in the Upper Primary Stage (classes VI-VIII) from 12.7% to 67.7%. However, there are wide variations in the GER among major States. The GER in the Primary Stage is 76.1% in Bihar, as against 145.0% in Tamil Nadu.

The total Literacy Campaigns, constituting the principal strategy for eradication of illiteracy, have been extended to cover 282 districts and the Post Literacy Campaigns to 105 districts. The focus of the campaigns has now shifted to Hindi speaking States having bulk of the illiterate population. A total of 58.07 million people have been enrolled under various National Literacy Mission as in Aug., 1994.

New Attempts The UGC law panel has approved the introduction of a course in Human Rights at the university and school levels. The Sidhu Kanu University of Dumka in Bihar and the University of Guwahati, Assam have already introduced this course at graduate and post-graduate levels following the National Human Rights Commission's (NHRC) request. Besides the Bar Council of India has also accepted Human Rights as an optional subject in the Law course. At the school level, the NHRC has set in motion the process of deleting portions of syllabus prejudicial to protection of human rights and also to introduce Human Rights as part of the school curriculum.

Education Television (ETV) has come of age and 24 hour dedicated channel covering all levels of education has been proposed to be introduced in India. It has in its purview adult literacy, language, vocational courses, and job opportunities. With the student population of the relevant age group growing at the rate of 5% and the already existing universities and colleges not being in a position to increase intake, the DE and ETV's role has become significant.

The Countrywide Classroom (CWCRC) programme telecast by the UGC over Doordarshan for some years now through the INSAT-1D with two presentations each of one hour duration has been made available everyday on all TV networks. Wide range of subjects are being dealt with like library automation, superconductivity, English for science and technology, Indian tribes, architecture, crystal growth etc.

Literacy Drive A phased drive called *Operation Blackboard* to improve the basic infrastructure of primary schools is also being pursued. Till 1989-90 a total of Rs. 3.83 billion had been spent under the scheme. A significant event in 1988 was the setting up of a *National Literacy Authority* to manage the national literacy mission aimed at achieving 80% literacy in the 15-35 age group in the country by 1995. (The present national literacy rate is 52.11%).

The policy on Education provides for opening of residential schools for talented children. These schools are named *Navodaya Vidyalayas*. It is proposed to open such schools in each district in the country. 342 Navodaya Vidyalayas covering 24 States and 6 Union Territories has been set up till 31st January 1994. Navodaya Vadyalayas are residential co-educational and primarily for children from rural areas. At least one third seats are reserved for girls. Presently, the overall percentages of SC/ST students admitted so far are 21% and 12% respectively.

The Navodaya Vidyalayas aim to provide opportunities to the talented children to develop their full potentials and to promote national integration. Education in these schools is free for all students.

National Council of Educational Research & Training (NCERT), established on September 1, 1961, is registered under the Societies Registration Act (1860). The main objectives of the NCERT are to assist and advise the Ministry of Education and Culture in implementing policies and major programmes in the field of education, particularly school education.

Among the multifarious activities the Council has taken up is revision of secondary level syllabi and textbooks under a collaborative arrangement with the Central Board of Secondary Education. Most of the States have already completed evaluation of textbooks from the standpoint of national integration and have also revised the textbooks. Efforts are being made to expedite the work in a few States where the progress has been slow.

The Council organizes, every 5 years, national surveys of teacher education both at secondary and elementary levels. Work has been initiated on the Third National Survey of Elementary Teacher Education and Fourth National Survey of Teacher Education at the secondary level.

The Regional College of Education under NCERT, Ajmer, Bhubaneswar, Bhopal and Mysore continued to organize various pre-service and in-service courses. The summer school-cum-correspondence courses that have been introduced to clear the backlog of untrained graduate teachers also continued to be organized.

The Board of High School and Intermediate Education, Rajputana including Ajmer, Mewar, Central India and Gwalior was established in 1929 by a Resolution of the Govt. of India. In 1952, the Board was given its present name *The Central Board of Secondary Education*.

The schools affiliated to the Board are located in all parts of the country and even abroad, giving the Board a pride of place in the field of school education. The schools affiliated to CBSE are expected to provide uniform school education cutting across State borders and linguistic

areas. The underlying idea is to promote national integration through inter-state mobility of students. This arrangement also helps children of transferable persons to pursue uninterrupted studies.

An *Open School* was set up by the CBSE in 1979 for propagation of Distance Education in the country. It imparts secondary stage education through the use of distance teaching techniques which include education through print material, personal contact programmes and other supportive services. The Open School has been conducting examination for its students since 1982-83 leading to Secondary School Certificate of CBSE.

With the idea of encouraging secondary schools having common syllabi and media of instruction for providing the facility of uniform education throughout the country for the children of transferable Central Government employees, including defence personnel, the scheme of *Central Schools* or *Kendriya Vidyalayas* was approved by the Government of India in November, 1962. To start with, 20 Regimental Schools were taken over as Central Schools or Kendriya Vidyalayas during the academic year 1963-64. Subsequently, *Kendriya Vidyalaya Sangathan* was set up as an autonomous organization to establish and run the Kendriya Vidyalayas.

There are 796 Kendriya Vidyalayas in the country now catering to 7,00,000 students. The number of teachers as of April 30, 1993 was 41,712. During the academic session 1993-94, 25 new Kendriya Vidyalayas have been sanctioned out of which 4 were in Defence, 18 under Civil and 3 under Public Sector.

Education up to class 8 is free in Kendriya Vidyalayas. The amount of tuition fee for higher classes is linked to the pay of the parents in case they are employed in Central Govt. or Central Public Sector Undertakings/Autonomous Bodies—otherwise, tuition fee at a flat rate is charged.

Universities The number of universities in the country since independence has expanded to 220 including institutions with deemed university status (34), 8,210 colleges, nearly 6 million student enrolment and 0.28 million teachers. In spite of the size, it catered to only about 5-6% of the 17-23 age group. Nearly 85% students were doing their graduation which, in recent times, had acquired the nature of a general degree required for further and professional studies.

Correspondence education has expanded since 1962 in 50 more universities offering various courses to over 0.5 million students across the country. These courses were part of the national educational programmes. The open universities have taken steps to weed out defor

mities in the courses. Changes were evident in the areas of restructuring the degree programmes providing them flexibility and modularity, reforms in examinations, vocationalisation of education, and extension education.

(For list of Universities see States).

Coordination and determination of standards in higher education is a subject in the Union list and is a special responsibility of the Central Government. This responsibility is discharged mainly through the *University Grants Commission* which was established in 1953 under an Act of Parliament. UGC approved 111 colleges for autonomous status, 23 in Andhra Pradesh, 44 in Tamil Nadu, 30 in Madhya Pradesh, 5 each in Rajasthan and Orissa and 2 each in Gujarat and Uttar Pradesh.

Twelve Universities, commonly known as

Central Universities, are at present functioning under Acts of Parliament. Besides, the Central Government have established agencies for promotion and coordination of research efforts in specialized fields. There are four such national agencies at present, namely *the Indian Council of Social Science Research*, *the Indian Council of Historical Research*, *the Indian Council of Philosophical Research* and *the Indian Institute of Advanced Studies*.

The twelve Central Universities are Aligarh Muslim University, Aligarh; University of Delhi, Delhi; University of Hyderabad, Hyderabad; Jawaharlal Nehru University, New Delhi; Indira Gandhi Open University, New Delhi; North-Eastern Hill University, Shillong with campuses is Shillong, Mizoram and Nagaland; Viswabharati, Santiniketan; Benaras Hindu University, Varanasi; Pondichery University; Assam Uni-

Student strength in India 1992-93

S.No.	State/U.T.s	Primary	Middle	Sec./Hr. Sec.	Hr. Education
1.	Andhra Pradesh	7,847,179	2,287,694	1,434,106	265,672
2.	Arunachal Pradesh	124,093	30,169	18,785	3,105
3.	Assam	3,623,763	1,155,236	643,911	114,610
4.	Bihar	8,894,707	2,190,221	1,234,544	495,195
5.	Goa	134,153	78,941	62,648	14,302
6.	Gujarat	5,982,918	1,995,231	1,247,000	392,450
7.	Haryana	1,794,314	762,578	578,240	97,885
8.	Himachal Pradesh	697,190	383,000	214,410	22,311
9.	Jammu & Kashmir	789,254	327,526	168,732	39,607
10.	Karnataka	6,108,560	1,883,741	1,397,029	310,582
11.	Kerala	3,019,185	1,906,699	1,138,671	107,890
12.	Madhya Pradesh	8,146,122	3,203,000	961,705	249,293
13.	Maharashtra	10,911,167	4,036,496	2,847,513	691,603
14.	Manipur	268,460	80,260	71,360	20,961
15.	Meghalaya	174,597	53,352	36,834	7,447
16.	Mizoram	114,261	37,874	20,519	1,477
17.	Nagaland	155,175	60,650	26,872	3,319
18.	Orissa	3,780,000	1,250,000	1,010,255	95,747
19.	Punjab	2,067,096	953,481	693,846	107,938
20.	Rajasthan	5,297,000	1,746,000	961,000	66,160
21.	Sikkim	74,497	18,515	9,687	0
22.	Tamilnadu	7,935,845	3,409,264	1,799,890	290,736
23.	Tripura	399,431	140,995	74,082	11,221
24.	Uttar Pradesh	15,744,400	5,440,250	3,379,599	487,026
25.	West Bengal	10,117,000	4,603,000	1,899,000	330,994
26.	A. & N. Islands	43,763	18,384	12,229	1,965
27.	Chandigarh	53,967	29,245	38,315	13,964
28.	Dadra & Nagar Haveli	16,934	4,688	2,980	0
29.	Daman & Diu	12,763	6,743	4,775	546
30.	Delhi	927,710	506,716	385,176	137,410
31.	Lakshadweep	8,773	3,673	1,828	0
32.	Pondicherry	105,939	59,301	36,143	5,944
India		105,370,216	38,708,581	22,710,148	4,387,360

* Excludes enrolment in Ph.D/M.Phil and all Professional Courses except Engineering (B.E./B.Tech/B.Arch), Medicine (M.B.B.S.) and Teacher Training (B.Ed./B.T.)

versity, Silchar, Tezpur University, Tezpur and Nagaland University, Kohima.

Among Central Universities, Indira Gandhi National Open University, (IGNOU)-has emerged as the second largest open university in the world after the Television University of China.

As many as 7,580 students passed out of the IGNOU during 1994-95. During 1994, 85,000 students enrolled for various programmes offered by the University. As many as 55.7% of the students enrolled during 1994-95 got employment — 23% of them were from rural areas and 22.5% were women.

IGNOU is one of the largest distance education networks in the Third World.

IGNOU recently launched the most sophisticated teaching method in distance education, videoconferencing, which helps students sitting at different places to take a 'class' beamed from Delhi through a separate satellite channel and get their doubts cleared instantly using a hotline attached to Delhi centre. Of the over 30 courses offered by the university MBA is the most sought after. IGNOU had 2 lakh students on its rolls in January 1993. The projected figure for 1995-96 is 90,000. It has established a net-work of 16 regional centres (at State levels) and 244 study centres across the country. By the turn of the century the university is planning to open study centers in all districts of the country.

The five *Indian Institutes of Technology* at Kharagpur, Bombay, Madras, Kanpur and Delhi were established as premier centres of education and training in engineering and applied sciences and to provide adequate facilities for post-graduate studies and research.

The Institutes conduct under-graduate programmes as well as Masters courses and Ph.D. programmes in different branches of Engineering, Science, Humanities and Social Sciences. There are also advanced centres of training and research in each institute in identified areas of specialization.

The Government of India has established four *Indian Institutes of Management* at Ahmedabad, Bangalore, Calcutta and Lucknow.

Seventeen *Regional Engineering Colleges* were set up, one each in the major states to meet the increased need for trained personnel during subsequent plan periods.

Today the country has over 300 technical institutions at the first degree level and about 750 polytechnics at the diploma level with annual admission capacities of 65,000 and 90,000 respectively. Facilities for postgraduate and research courses (Ph.D level) have been created with an annual intake capacity of 11,000 students. The Department of Electronics in 1988 announced steps to establish four Indian

Institutes of Information Technology (IIIT) at Pune, Bhubaneswar, Hyderabad and Delhi.

School of Planning and Architecture, New Delhi was established in July, 1955 as the School of Town and Country Planning to provide facilities for training in Rural, Urban and Regional Planning and to cater to the needs of Central State and Local Departments of Town Planning. It is a Deemed University now.

Scientific Personnel: India has the third largest number of scientific personnel in the world— 3.5 scientists and technicians/1000 people (HDI '86-91); 2.5 R&D scientists and technicians/10,000 people (HDI '86-89) and 20 science graduates as per cent of total graduates, '88-89.

The world of Indian science is dominated by three academies. 1. *Indian National Science Academy, Delhi*. 2. *Indian Academy of Science, Bangalore* and 3. *National Academy of Sciences, India, Allahabad*.

The responsibility for research in India is shared among various councils, committees and departments, all of them functioning under the aegis of the Central or State governments. Important among them are: the Council of Scientific and Industrial Research (CSIR), the Indian Council of Medical Research (ICMR), the Indian Council of Agricultural Research (ICAR), the Central Council for Research in Indian Medicine and Homoeopathy, the National Committee on Environmental Planning and Coordination (NCEPC), the Dept. of Atomic Energy (DAE) and the Dept. of Space (DOS).

Scholarships The Department of Education funds several scholarship/fellowship programmes for Indian students for school and higher education. They include the National Scholarship Scheme, a scheme of scholarships to help students of non-Hindi speaking states studying Hindi, research scholarships for Indian classical language and scholarships to enable talented rural children to continue secondary education.

A programme of prestigious fellowship for post-graduate studies in India and abroad named Jawaharlal Nehru Fellowship has been started.

Scholarship for advanced or specialised studies are offered under provisions of cultural exchange programme, bilateral agreements, Commonwealth scholarships/fellowships plan and ad hoc scholarship offered received from different countries. The scholarships are mostly for Ph.D and post-doctoral specialisation for which the minimum eligibility requirement is Master's degree. During 1993-94, 144 students went to countries like Germany, France, Poland, U.S.A., Australia, Japan, Norway, China, Canada, Austria, S. Korea etc.

Environment

At the time of India's independence, our priority was the provision of the basic human needs of food, fuel, shelter, health, employment etc., to our vast majority of the population. As such the focus of our first plan was on agriculture, health, family welfare etc. In the fourth Five Year Plan, problems related to environment received direct attention.

Environmental problem in India can be classified into two broad categories: (a) those arising as negative effects of the very process of development and (b) those arising from

conditions of poverty and under-development. The first category has to do with the impact of efforts to achieve rapid economic growth and development. Poorly planned developmental projects are usually environmentally destructive. The second category has to do with the impact on health and integrity of our natural resources such as land, soil, water, forests wildlife, space etc, as a result of poverty.

Forests The country has an area of 75.23 million hectares notified as forests, which 40.61 million hectare is classified as reserved and

Actual forest cover by density classes

State/UTs	Dense crown density above 40%	Open crown density 10% to 40%	Mangrove	Total	Comparative change between 1991 & 1993
Andhra Pradesh	25,008	21,870	378	47,256	-34
Arunachal Pradesh	54,510	14,151	-	68,661	-96
Assam	15,998	8,510	-	24,508	-243
Bihar	13,172	13,415	-	26,587	-81
Goa	995	249	3	1,247	-5
Gujarat	6,301	5,324	419	12,044	+137
Haryana	329	184	-	513	-
Himachal Pradesh	9,565	2,937	-	12,502	+722
Jammu & Kashmir	10,953	9,490	-	20,443	-379
Karnataka	24,852	7,491	-	32,343	+144
Kerala	8,421	1,915	-	10,336	-44
Madhya Pradesh	95,537	39,859	-	135,396	-389
Maharashtra	25,680	18,024	155	43,859	-185
Manipur	5,307	12,314	-	17,621	-64
Meghalaya	3,305	12,464	-	15,769	-106
Mizoram	4,238	14,459	-	18,697	-156
Nagaland	3,487	10,861	-	14,348	+27
Orissa	27,151	19,799	195	47,145	-60
Punjab	481	862	-	1,343	-
Rajasthan	3,581	9,518	-	13,099	+264
Sikkim	2,395	724	-	3,119	+86
Tamil Nadu	9,422	8,283	21	17,726	+13
Tripura	1,819	3,719	-	5,538	+3
Uttar Pradesh	22,965	10,996	-	33,961	+352
West Bengal	3,362	2,705	2,119	8,186	+171
Andaman & Nicobar	6,567	91	966	7,624	+2
Chandigarh	4	1	-	5	-
Dadr & Nagar Haveli	159	1	-	206	-
Daman & Diu	-	3	-	3	-
Delhi	12	10	-	22	-
Lakshadweep	-	-	-	-	-
Pondicherry	-	-	-	-	-
Total	3,85,576	2,50,275	4,256	640,107	+925

all figures in square kilometers

21.51 million hectare as protected. Unclassified forest area is spread over 13.11 million hectare.

About 19.47% of the total geographical area of the country is under actual forest cover. According to the State of Forest Report, 1993, the forest cover of the country is 6,40,107 sq.km, which is 19.47% of the total geographical area of the country.

Based on the LANDSAT Imagery, 1993, of the 77008 million hectares (m. ha.) of Recorded forest, there are 64.0107 m. ha. of Actual Vegetation, 25.0275 m. ha. of Open Vegetation, 38.5576 m. ha. of Dense Vegetation, 41.492 m. ha. of Reserved forest, 23.308 m. ha. of Protected forest, 12.208 m. ha. of unclassified forest and 0.4256 m. ha. of Mangrove Vegetation.

Increasing population, along with widespread poverty, has generated pressure on our natural resources and led to a degradation of the environment. Of the 329 m. ha. of the of the total land area in the country, it is estimated that about 174 m.ha. is degraded; this consists of agricultural as well as non agricultural lands, and forests. The forest resources are threatened due to overgrazing and other forms of over exploitation, both for commercial and household needs, encroachments, unsustainable practices like unscientific cultivation and development activities. It is estimated that fuel-wood removal from the forests exceeds 235 million cubic meters, as against a sustainable level of production of only 48 million cubic meters. In large parts of forests, natural regeneration is inadequate due to excessive grazing of livestock, whose population is estimated to be 450 million. The over exploitation and loss of habitat constitute a threat to the rich biological diversity available in the country. India possesses the widest variety of biomass. (see page 131).

Forest conservation—Increasing destruction and degradation of forests and treelands especially in the Himalayas and other hilly areas, is contributing to heavy erosion of top soil, erratic rainfall and recurring floods.

It is causing acute shortage of firewood and loss of productivity due to eroded and degraded lands. Another area of concern is

degradation of forests due to biotic pressure.

The National Forest Policy explicitly recognised the multiple use nature of forests, rights of local populations, including the inadvisability of protecting forest resources without their active participation, and the role that forest play in the survival strategies of the poor. The task of regenerating the degraded forests and lands adjoining forest areas and other protected and ecologically fragile areas and implementation of eco-development programmes is being undertaking by the National Afforestation and Eco-Development Board.

The major schemes in the Wildlife sector concentrate on conservation, protection, and development of wildlife and its habitat. The main strategy for conservation of bio-diversity

is protection of variable habitats in representative ecosystems. A wide network of 75 National Parks, 421 Wildlife Sanctuaries, 21 Project Tiger areas and 8 Biosphere reserves have contributed greatly towards conservation of these species.

The present pattern of industrial activity has involved use of hazardous substances and generation of solid waste. The storage, dumping and treatment of solid waste such as fly-ash, phosphogypsum and blastfurnace slag are emerging as a major problem in the industrial areas. The

problem of regulating toxic flammable and explosive chemical and petrochemicals industries is also formidable. Most industries discharge waste water into rivers and water courses without adequate treatment. Industrial effluents are not easily biodegradable and are often beyond the natural assimilation capacity of rivers, with the result that water bodies remain polluted, affecting the health of the population. According to survey undertaken by Central Pollution Control Board (CPCB) in 241 classII cities spread over 17 states, about 90% of the water is polluted. The problem of inadequate sanitation is also acute, as data for 1988 indicate that 54% of the urban population and 97% of the rural population did not have the benefit of sanitation services.



The mangroves of Pichavaram

Telecommunications

Telcommunication services have been recognised the world over as an important tool for social-economic development for a nation and hence telecom infrastructure is bound to be central to the release of the socio-economic objectives in India. Accordingly, DoT has devised strategies for accelerated growth of telecommunication services to the tune of 15% to 20% in the urban areas to meet the growing demands and taking the services to rural areas as a developmental infrastructure.

The main objectives of the Department include planning, engineering, installation, maintenance, management and operation of voice and non-voice telecommunication services all over the country. In addition, the Department is also responsible for frequency management in the field of radio communication in close coordination with international bodies. It also enforces wireless regulatory measures by monitoring wireless transmission of all users in the country.

Telecom package for rural sector The package essentially entails lower call charges, rentals and registration rates besides higher commission to village panchayats for public phones installed on their premises. The package includes 250 free calls per bimonthly billing cycle from the present uniform 150 calls. The next 200 calls will be given a rebate of 25% which will be over and above the concessional charges for long distance calls during off-peak hours. The registration fee for exchanges of up to 10,000 line capacity has been halved from Rs. 2,000 and the rental for subscribers services by exchange systems of 100 to 1000 lines has been reduced from Rs. 150 bimonthly to Rs. 100. The existing concession of 20% of the call charges paid to franchisees of local public call offices installed in panchayats has been more than doubled to 50% of the gross turnover. This enhanced commission is also being extended to the PCO franchisees given phones under the Panchayat Sanchar Sewa Yojana launched by the Department of Post.

For the country's 0.45 million PCO operators, a 3-tier royalty structure will come into effect. Operators in the rural areas will be paid 25% commission on the gross turnover while those in non-rural but hilly areas (J&K, Himachal, UP hills, the seven North-East States and other hilly regions like the Nilgiris) will be paid commission of 20% of the gross turnover up to Rs. 50,000 and 15% on the amount exceeding this slab. The over 0.25 million urban franchisees

will be paid commission at the rate of 16% on turnover of Rs. 20,000, 15% on turnover between Rs. 20,000 and Rs. 50,000 and 12% on turnover exceeding Rs. 50,000.

The group dialling scheme has been further liberalised to make it really effective. Group dialling facility up to 30 km in rural, hilly and tribal areas and up to 20 km in one of the three criteria is met. The criteria are: if the calling and called exchanges are in the same small distance charging area (SDCA) (the existing norm); if this conditionality is not met but if the exchanges are within 30 or 20 km from each other and if local areas have a common boundary even if they fall within adjacent areas.

In addition to rural areas, the package includes a better deal for the far flung and hilly urban areas by the liberalisation of the group dialling scheme.

Telecom services are emerging as the third largest telecom market in the world. Indian government plans to wire the country with a national information highway, NIH, by interlinking the existing networks. The NIH could cost up to Rs. 4000 billion depending on the sophistication and its size. Such information highway would enable Indians to access high speed interactive multimedia and two way communication facilities through a network that combines satellite, fibre optics, radio and wireline linkages. The wiring has started in right earnest. NIH has brought nearly 30 Indian cities into its own information superhighway. It will expand to cover 70 cities within a year.

Till November 1994, 258 new telephone exchange lines were added. The switching capacity and direct exchange lines have been increased by 618,000 lines and 576,000 lines respectively. Thus, beginning with less than around 86,000 telephones and predominantly telegraph based network at the time of Independence in 1947, India has now achieved a network of more than 19,293 telephone exchanges with a capacity of 10.5 million lines and 8.8 million telephone connections (as on 31 Dec. 1994). The annual growth rate of providing new telephone connections recorded 18.3% growth and the new connections actually provided was 1.23 million in 1993-94. The number of people waiting for new connections as on 31 March, 1994 was 2.5 million. Besides, new value-added services such as Cellular phones (in Metropolitan cities), Radio Paging (in major towns), VSAT Services (are portable antenna dishes for communicating with other VSATs or a central hub

stations via a satellite channel), Electronic Data Interchange (EDI), Voice Mail, Video Conferencing, Facsimile, Remote Area Business Message Network, Packet Switching Data Network, Electronic Mail, and CB Radio (Citizens Band is a set of radio frequencies which are used in low-wattage walkie talkies, games etc. that are available free for use to the public at large, recently allowed in India etc.) have also been introduced in 1995. A long distance transmission network consisting of over 127,097 RKM of Microwave, UHF, Coaxial and Optical Fibre now serves India.

The objective of the DoT is to connect all the villages totalling about 60.36 million by telephone lines by 31st March 1997. During 1994-95, it is proposed to provide telephone facilities to 50,968 number of villages. Out of this connectivity has been achieved in respect of 16,750 villages up to 31st December 1994. DoT has now provided STD connectivity practically to all the District HQs and it is planned to extend the same to cover all the Sub-Divisional HQs within the next year. The network is getting automated rapidly and a fully automatic network is expected to be achieved within the next year.

The two basic thrust areas of the 8th Plan (1992-97) are: rapid expansion of telecom network and transforming it into a modern and most efficient one. Accordingly it is envisaged to achieve provisions of additional 7.5 million phones in 0.36 million villages, STD facilities to all exchanges by April, 1997, and one PCO for every 100 households in urban areas. Besides, connecting all District HQs by digital network and introduction of value-added services are also planned for.

The National Telecom Policy has paved the way for private participation and funding to help achieve the aim of universal coverage at affordable prices by the end of 8th Plan. Initiatives have already been taken to privatise basic telecom services and expand the value-added services.

These are the highlights of the national telecom policy, May 13, 1994:

- ◆ Telephone connections to be available on demand in urban areas by 1997; all villages to be covered under the telecom network.

- ◆ Private sector allowed to operate telephone services on an agreed tariff and revenue sharing basis.

- ◆ All value-added services to be made available by 1996. Department of Telecommunications to find new methods of financing its expansion programmes, which include leasing.

- ◆ New criteria fixed for the eight value-added services, including radio paging and cellular mobile telephone.

- ◆ Indigenous research and development mechanism to be set up, with suitable funding to modernise available technologies.

The policy document, focuses on providing telecom services of "world class quality", within a time frame and for introducing in India all value-added services available abroad, by 1996.

The motto is "telecom for all and telecom within the reach of all". As the existing waiting list for telephones (3.5 million in 1994) mounts, the DoT has taken up the challenge of providing public telephones.

The policy document also outlined a plan to generate the required additional resources of over Rs. 230.0 billion in the eighth plan period, because of the proposed rapid acceleration of telephone services.

The Department of Telecommunications (DoT) would also try to raise additional funds through increased internal resource generation (IRG). Bridging the gap was "beyond the capacity" of government funding and IRG efforts.

On generation of additional resources to achieve the targets, the policy says there will be a resource gap of Rs. 75.00 billion during the eighth plan period. According to it, the cost per line was Rs. 47,000 at 1993-94 prices.

The proposed telephone on demand by 1997 implies releasing about 10 million phone connections in the eighth plan period, as against the existing target of 7.5 million lines.

The policy also calls for easy inflow of technology from abroad, to enable the country to derive maximum advantage from emerging technologies. Manufacturing facilities which have been privatised in phases in the recent past would get more incentives in the wake of revision in targets and expansion of capacities in the coming years.

The present policy of selection, based on agreed criteria in respect of radio paging (usually a one way wireless communication device which can receive both alphanumeric and numeric data; operated by at least 15 companies in 27 cities in India.) and cellular telephone services (wireless-based technology for people on the move without any restrictions except the geographic reach of the service they subscribe to costs at present Rs. 30,000 in India), would continue to be followed. Companies registered in India would be permitted to operate the other value-added services like E-mail, voice mail, data services, audio text, video text and video conferencing under license on non-exclusive basis.

Videsh Sanchar Nigam Limited (VSNL) operates as the nodal point for overseas communications. With its extensive infrastructure of earth stations, state-of-the-art digital gateways, optical multimedia submarine cable and data switches, VSNL provides a range of basic and value-added services. In the future, VSNL is positioning itself to provide: Bandwidth on demand, Global Virtual Private Network, ISDN, VSATs, Inmarsat B/M and hand held Personal Communications.

Transportation

Present transport system prevailing in the country comprises several modes of transport, including rail, road, coastal shipping, air transport, etc. Transport has recorded a substantial growth over the year both in network and output of the system.

Railways

The Indian railways provide the principal mode of transportation for freight and passengers. It brings people together from farthest corners of the country and make possible the conduct of business, sight-seeing, pilgrimage and education. It has played a vital role in the economic, industrial and social development of our country. Indian railways made a modest beginning in 1853, when the first train was lagged off from Bombay to Thane, a distance of mere 34km. It has since grown into a vast network of 7,043 stations spread over a route length of 62,486 km with a fleet of 7,806 locomotives, 39,929 coaches, 3,444 electric multiple units and 0.337 million wagons. During 1992-93, 297 locomotives, 2,211 coaches, 278 MU coaches and 19,649 wagons were acquired. Doubling of 295 km was completed while 2,814 km of track was renewed. The railways employ about 1.6 million workers, the largest number for any undertaking in the country.

The network runs multi gauge operations extending over 62,486 route kilometer. The

gauge-wise route and track lengths of the system as on 31 March 1993 were : Broad Gauge (1.676 mm)—74,470 km; Meter Gauge (1.000 mm)—30,214 km; Narrow Gauge (762 mm and 610 mm)—4,465 km. In total there were 62,486 route kilometer, 79,200 running track kilometer and 0.109 million kilometer of total track distance. About 18% of the route kilometer, 26.28% of the running track kilometer and 25.12% of the total track kilometer is electrified. The network is divided into 9 zones and further subdivided into divisions. Divisions are the basic operating units.

Passenger Business Passenger journeys at 3,708 million in 1993-94 dropped 1.09% from 3,749 million in the previous year, while passenger kms. dropped by 1.33% from 300 billion to 296 billion in 1993-94. The decline in passengers was mostly on short distances up to 500kms. However, earnings in 1993-94 from passengers were Rs. 48.91 billion — an increase of Rs. 5.8 billion (13.45%) over the previous years.

Freight Operations The originating revenue loading was 358.72 million tonnes in 1993-94 compared to 350.05 million tonnes in the previous year — an increase of 8.67 million tonnes (2.5%). The transport in terms of revenue net tonne kms was 252.41 billion in 1993-94 compared to 252.38 billion in 1992-93. Earnings from goods carried was Rs. 12.27 billion — up Rs. 16.11 billion (15.1%).

Electrification 505kms of IR's route was

Railway zones

Zones	Headquarters	Kms.	States passing through
Central	Bombay V.T	7076	Haryana, Karnataka, M.P., Maharashtra, Rajasthan, U.P.
Eastern	Calcutta	4303	Bihar, MP, U.P., West Bengal
Northern	New Delhi	10995	Gujrat, Haryana, H.P., J&K Punjab, Rajasthan, U.P., Delhi, Chandigarh.
North Eastern	Gorakhpur	5131	Bihar, U.P., Assam,
NE Frontier	Maligaon (Guwahati)	3858	Nagaland, Tripura, West Bengal.
Southern	Madras	7009	Andhra Pradesh, Karnataka, Goa, Kerala, Tamil Nadu.
South Central	Secunderabad	7218	A.P., Karnataka, M.P., Maharashtra, Tamil Nadu.
South Eastern	Calcutta	7161	A.P., Bihar, M.P. Orissa, West Bengal.
Western	Churchgate (Bombay)	9735	Maharashtra, Rajasthan, MP, Gujarat, Haryana, UP.

electrified during 1993-94. As on March 31, 1994, a total of 11,793 route kms. operated on electric traction.

Gauge Conversion Construction of 211 kms of new lines was completed and 1,619 kms of track having undergone gauge conversion, was opened to traffic in 1993-94. Gauge conversion of 25 other sections involving a route length of 5,931 kms was underway.

Project Unigauge appears to be breezing along the rail tracks of the country and a determined Indian Railways is set to transform all the existing meter and narrow gauge lines into broad gauge by 2004. When 'Project Unigauge' was launched in 1992-93, 12,000 km of MG and NG lines had been identified for conversion to BG. Of this, 6,000 km is targeted for conversion by 1997—the end of the 8th Five Year Plan—and funds to the tune of Rs. 39.0 billion have been carved out for this. Between the launch and 1994, some 2,970 km of gauge conversion has been completed against the Railways' target of 2,800 km. This involved avoiding track renewals on MG and NG sections which were identified for conversion.

The extent of BG system of the total rail network in major states: Orissa (93 per cent), Punjab (92), Kerala (88), West Bengal (78), Madhya Pradesh (75), Uttar Pradesh (70), Bihar (67), Maharashtra (64) and Haryana (59).

Passenger Insurance The railway ministry enforced on August 1, 1994 the railway passenger insurance scheme under the Indian Railways (Amendment) Act, 1994.

Hereafter, the victims of untoward incidents like acts of terrorism, bomb blasts, robberies, dacoities, violent attacks, riots, shoot-out and arson in trains, waiting halls, cloak rooms, booking offices, within the precincts of any railway station will be eligible for compensation and provided insurance cover. The same scale of compensation will be applicable to the victims of the untoward incidents as is provided under the railway accidents (compensation rules), 1990.

The compensation in the case of death or permanent disability will be up to Rs. 2,00,000 and in the case of injuries the minimum compensation will be Rs. 16,000 and the maximum Rs. 2,00,000. The new scheme would benefit about 5,000 million passengers every year.

Under the Indian Railway (Amendment) Act, 1994, the jurisdiction of railway claims tribunal has been extended to cover cases under the passenger insurance scheme.

The claimants or their authorised agents under the scheme would be required to file their claims with the railway claims tribunal under section 125 of the Indian Railways Act, 1989. A sum of Rs. 53.0 million has been provided by the railways as premium during 1994-95 to the United India Insurance Com-

pany Limited for payment of compensation.

However, under the scheme, no compensation will be given in cases of criminal acts of passengers, acts committed by the passengers in a state of intoxication or insanity, natural cases or diseases or medical or surgical treatment unless such treatment became necessary due to injury caused by any of the aforesaid incidents.

Container Service Indian Railway has introduced a new marketing strategy of container services. The Container Corporation of India (CONCOR), a public sector undertaking provide door to door services for domestic users, transportation in bulk for small customers and international transport in International Standards Organisation (ISO) containers.

Ports

There are 11 major ports in the country apart from 139 minor working ports along the coastline of about 5,600 km. During 1993-94, the total cargo handled at major ports was 179.3 million tonnes, which registered a growth of 7.6% over 1992-93. Major ports are the direct responsibility of the Central Government, while minor including intermediate ports fall in the Concurrent List of the Constitution and are managed and administered by the respective maritime state government.

Kandla, Bombay, Mormugao, New Mangalore, Cochin and Jawaharlal Nehru Port are the major ports of west coast. On the east coast Tuticorin, Madras, Visakhapatnam, Paradip and Calcutta-Haldia are the major ports. All the major ports are administered in accordance with the provisions of the Major Ports Trust Act 1963. Madras is one of the oldest ports on the east coast. It handles crude oils and iron ore. Visakhapatnam is the deepest port where an outer harbour has been developed for exporting iron ore and a berth has been constructed for crude oil and also petroleum products. Paradip handles iron ore and some quantities of coal and dry cargo. Calcutta is a riverine port handling diversified commodities. A new mechanised dock system at Haldia with provision for deep draft vessel supplements the facilities available at Calcutta. Jawaharlal Nehru port is equipped with modern facilities having mechanised container berths for handling dry bulk cargo and service berths etc. Kandla is a tidal port. It handles all types of traffic. New Mangalore handles export of Kudremukh iron ore. Cochin is a natural harbour. Tuticorin handles mainly coal traffic. Bombay handles one fifth of total traffic of the ports, bulk of which consists of petroleum products, and dry cargo

Shipping

Overseas shipping has an extremely important role to play in India's international trade. The country has the largest merchant shipping fleet among developing countries and ranks 5th in the world in shipping tonnage. As on 31 December 1993 the operative tonnage consisted of 443 vessels trowelling to 6,267 MGRT. Indian vessels carried about 34% of the total seaborne cargo during 1993-94. The share of Indian vessels in POL was 60.6% in 1993-94, in bulk carriers of 20%, and in liner traffic 8.8%. The fleet strength at the end of December, 1994 was 38 vessels of 6.3 million Gross Registered Tonnage (GRT), against 443 vessels 6.27 GRT in December 1993. Overseas trade during 1993-94 was 136.97 million tonnes against 122.3 million tonnes during 1992-93.

There were 56 shipping companies in the country operating as on 31 Dec. 1993, including Shipping Corporation of India- a public sector company. Of these 29 were engaged exclusively in coastal trade, 20 in overseas trade and the remaining 7 in both coastal and overseas trade.

There are 4 major and 3 medium size shipyards in India in the public sector. Apart from these, there were 35 small shipyards in the private sector which cater to domestic requirements for small craft.

Of the 17 dry docks in the country, 13 are available for commercial ship repair activities, while dry docks at Cochin and Visakhapatnam can accommodate ships of maximum size of 100,000 DWT and 57,000 DWT respectively.

National Waterways

India's riverine system is vast, though it varies from region to region. Unfortunately, suitable advantage has not been taken of this natural endowment for the benefit of development. Apart from irrigation, the river systems offer the possibility of transport that is not only cheap, but also environmental friendly.

In terms of irrigation, the whole civilisation has been generated by it. Yet even here the full benefits have not been harnessed to the extent that the potential offers.

Three national waterways systems have been declared to be functional up to now. In 1986 the Allahabad-Haldia stretch (1,620 km) of the Ganga-Bhagirathi-Hooghly river system was inaugurated as National Waterways No. I. Two years later the Sadiya-Bangladesh border (Dhubri) stretch (891 km) of the Brahmaputra was declared as National Waterways No. II. In 1993 the stretch between Kollam and Kottapuram (168 km) of the west coast canal, plus the Champakara canal, (14 km) and the

Udyogmandal canal (23 km) were declared as National Waterways No. III.

Three more waterways systems are being developed. One is in the Sunderbans (191 km) to provide a steamer route between Sagar and Raimangal at the Bangladesh border. The second is between Cherla and Rajamundhry (208 km), along with delta canals, on the Godavari. The third are the waterways in Goa on the Mandovi river (41 km), Zurai river (64 km) and the Cumberjua canal system (17 km).

National Waterways I, can be divided into three sections, the Haldia-Farraka stretch (560 km), Farraka-Patna (460 km) and Patna-Ballia. The first stretch has adequate terminal facilities and daylight navigation marks; the second stretch has daylight navigational facilities, floating terminals and sufficient pilotage. National Waterways II, on which the highest density of cargo is carried, more or less originates or culminates in Calcutta. A protocol on inland water transit and trade with Bangladesh is in force till October. It would be in the interests of both countries to renew the life of the protocol.

Unfortunately, not only has the full potential of the three national waterways not been used, the tonnage transported on all three declined last year in comparison to the year of each one's peak performance. Thus on National Waterway II the highest tonnage transported was 534,000 tonnes in 1991-92, but the figure went down to 401,000 tonnes in 1994-95. Similarly on National Waterway III the tonnage transported fell to 13,000 tonnes during 1994-95 from a peak of 39,000 tonnes in 1989-90.

According to the Fredric Harris report a projected 2.0 million tonnes cargo transport has been made for National Waterway I, including 1.2 million tonnes of stone to Calcutta, apart from such bulk items like jute, petroleum and its products and fertilisers. The Dutch consultant in 1990 recommended that the market focus should be on stone handling, particularly between Pakur and Calcutta. To maximise utilisation, it was necessary to have 600-tonne self-propelled barges, in combination with 600-tonne dumb barges, 24-hour navigational facilities, apart from infrastructure facilities like captive terminals for stone handling and approach roads. The waterway has a long way to go to achieve its potential.

For national Waterway II, the cargo projection by the turn of the century is 2.2 million tonnes, which is highly impossible to achieve considering that only 13,000 tonnes were moved last year. The main cargo consists of foodgrains, tea, fertilisers, jute and limestone.

In the case of National Waterway III, the projected cargo to be carried by the year 2000 is 1.9 million tonnes, even though only 401,000

tonnes was carried last year, which in turn was not the best performance. Chemicals and fertilisers are the main cargo on this waterway.

In the case of National Waterway II, the Surface Transport Ministry is exhorting the movement of cargo to the north-eastern region through its systems. A Bangladesh project requires the moving of boulders from Assam to Bangladesh, which could raise the traffic on this system. As for National Waterway II, it is hoped cargo traffic would increase with the movement of petroleum and its products, naphtha, etc., once the Kayamkulam power project is ready.

The Inland Waterways Authority of India (IWAI) was set up in 1985 and is responsible for the installation of infrastructural facilities, maintenance of pilotage and the co-ordination of national waterways transport with other modes of transport, apart from enhancing the use of the national waterways.

Roads

India has one of the largest road networks in the world. The country's total road length increased from 1.69 million kms in 1985 to 2.04 million kms in 190-91. As on 31 March 1993 Border Road Organisation (BRO) has constructed about 24,000 km of roads out of which it is maintaining about 19,000km in various areas of its operation. The National Highways network of 34,058 km at the end of 1993-94 constitutes less than 2% of the total road network, but carries nearly 40% of the total road traffic.

It is estimated that road traffic, which accounts for 80% of passenger traffic and 60% of goods traffic, will account for 87 and 65% respectively by 2000. To meet a traffic expansion of such magnitude, the National Highway network must be greatly improved. About 20% of the NH need widening from single to double lanes and about 70% of two lane roads have to be strengthened, and selected corridors on NH need conversion into Expressway. The Parliament approved the National Highways (Amendment) Bill, 1995, which provide for private investment including foreign, in building of national highways and their maintenance. The private investment has become necessary to lay 10,000 to 12,000 national highways, otherwise called Super National Highway, for which the government did not have adequate funds.

Air transport

The competitive environment on domestic services has been, in effect, existent since April, 1993. By March 1994, 19 aircraft in the 120 plus category, belonging to the private air taxis, were

in operation. The natural consequence of creating a competitive environment in this sector was that, by March 1994, 25% of the market was being catered to by private air taxis. The number of passengers carried by air taxi operators has increased from 15,000 in 1990 to 0.4 million in 1992, 2.9 million in 1993 and was projected to cross 3.5 million during 1994. Thus Indian Airlines on one hand had to share the market on its profitable trunk routes. On the other hand it faced the threat of loss of critically skilled personnel to private operators who offered much higher emoluments. This affected its ability to optimally deploy its existing aircraft capacity. Indian Airlines has also geared itself since June 1993 to challenging task of adapting itself to a competitive environment. Since the total domestic market did not grow substantially in 1993-94, and the existing market had to be shared with private operators, IA continued to face financial difficulties during the year. This was further accentuated by a fare structure which did not fully compensate the cost of inputs and substantial increase in depreciation and financing charges due to new additions to the aircraft fleet.

The revenue and expenditure of IA during April-February, 1993-94, increased by 13.3% and 13.2% respectively. The net loss during this period was Rs. 2.35 billion, as compared to Rs. 1.79 billion during April-February, 1992-93. The loss during this April-November 1994 was estimated at Rs. 1.95 billion.

The net profit of Air India Limited at about Rs. 2.0 billion in 1993-94 was 40% lower than in 1992-93. Air India's overall load factor was 57.3% lower compared to other international airlines. Its share of international traffic originating from India has come down from 42% in 1982 to 35% in 1991 and 20% in 1993. Air India recorded a net profit of 2.10 billion in 1993-94 and Rs. 3.33 billion in 1992-93, ranking sixth among 150 of the world airlines in terms of profit generation. This was while the air transport industry continued to suffer losses all over the world. However, according to a study, the market share of AI in international traffic originating from India has come down as much as 16 per cent in recent years.

Pawan Hans Limited basically provides helicopter support services to the oil sector, hill station and remote areas. The total flying hours during 1993-94 was 18,127. The revenue earnings and net profits during 1993-94 were Rs. 1.27 billion and Rs. 0.23 billion.

Indian Airlines, as of May, possessed a total of 55 jet aircraft (10 A 300s, 25 A320s and 20 Boeing 737s), Jet Airways had five Boeing 737s, East West Airlines seven B-737s, Damania Airways four B-737s, ModiLuft three

B-737s and Sahara Airlines a solitary B-737.

Four top foreign airlines have generated and repatriated over Rs. 20.00 billion from operations in India during the last four years, taking advantage of the liberalisation policy. A modernisation programme to turn 12 airports in the country into model airports is on. The airports are Bhubaneshwar, Kozhikode,

Guwahati, Hyderabad, Imphal, Indore, Jaipur, Patna, Vadodara, Coimbatore, Lucknow and Nagpur. By 1996 India will have 22 airports of international standard. Punjab was brought again in the international airmap in 1994 after a gap of 10 years with the introduction of bi-weekly international flights from Rajasansi in Amritsar.

Plantations

Plantation crops, in general, are a source of valuable foreign exchange for the country.

Indian tea enjoys international reputation. We are the largest producers, consumers and exporters of tea. The Tea Board has plans to produce 1000 million kgs. of tea by the year 2000. As for rubber, India ranks fourth in world output, and the past year saw the country bagging the first place in productivity. In spices too India is the topper in both output and export.

Tea

The story of tea began in India around two centuries ago when the East India Company was searching for an alternate source of supply to Chinese tea. The first commercial effort at organised tea growing in India was started by Assam Tea Company in 1839. George Williamson is credited with developing modern technology for tea production in India as opposed to the traditional method practised in China. Slowly, tea plantations were set up in Darjeeling, Dooars and Terai regions of West Bengal and Nilgiris in South India.

Tea is recognised as the most popular and the cheapest beverage in India. The country consumes over 70 crore cups of tea everyday resulting in a per capita consumption of about 640 grams per annum.

Tea industry in India is one of the oldest and well organised industries and plays an important role in the national economy. It is traditionally an important foreign exchange earner with negligible import content and makes a significant contribution to the State and Central exchequer.

Production of tea in the country has grown steadily from a level of 561 million kgs. in 1982-83 to 723 million kgs. in 1992-93. Domestic demand for tea has risen at a faster pace, thereby, creating a pressure on the exportable surplus which is close to about 200 million kgs. Steps have been taken by the Government to stimulate production so as to meet the growing

domestic and international demand for tea. Tea Board has drawn up a perspective plan for achieving a production target of 1000 million kgs. by 2000 AD. In 1992-93, 177.9 million kgs. valued at Rs. 993.4 crore was exported. In 1993-94, exports declined to 161.2 million kgs. valued at Rs. 1080.1 crore.

The Indian tea industry has been facing a stormy era ever since the collapse of the USSR in 1991. The Soviet Union was the biggest buyer of India tea. It imported more than one lakh tonnes of tea from India. This figure fell to 50,000 tonnes in 1994.

Iran, another good customer of Indian tea, has also been facing problems. The redeeming feature has been the ever rising domestic demand.

India continues to be the world's largest producer, consumer and exporter of black tea. It is the only producer which manufactures both CTC and Orthodox tea in substantial quantities.

For 1994-95 a production target of 770 million kgs. and an export target of 210 million kgs. has been fixed. Up to August 1994, production was 465.9 million kgs. as against 454.1 million



kgs. during the corresponding period last year. Similarly, exports up to August 1994 were 53.5 million kgs. valued at Rs. 330.5 crore, as compared to 59.1 million kgs. valued at Rs. 408.1 crore during the corresponding period last year.

The area under tea cultivation has increased at less than one per cent per annum and currently around 4.2 lakh hectares of land is under tea cultivation. The average productivity has also been improving. It increased from 1,174 kilograms/hectare in 1970 at the rate of over two per cent per annum.

The quality of tea produced by other countries is not as good as that grown in India; but Indian planters need to improve. It is reported that most of the tea bushes are over 50 years old. It is a pity that the tea industry has not got the attention that some of the recent agricultural products have got in recent years. Tea provides the highest employment per hectare of cultivated land. Plantations afford direct employment to over 10 lakh people. Many more are employed indirectly in tea machinery, packing, warehouse operations, tea trade, transportation etc.

The Tea Board formulated two schemes for the promotion of Indian tea under the Planned Budget for 1995-96; the Brand Promotion Fund (Interest free) Loan Scheme and the Sophisticated Tea Packaging Arrangement Scheme. The first is meant to provide loans to exporters to undertake brand promotion on sustained basis in overseas markets and the second to give loans to enable exporters to set up modern packaging machinery for export purposes.

Coffee

India's coffee production comprises just 2.8 per cent of world production. Coffee is consumed mainly in the southern states, and a large share of annual output is surplus, and therefore available for exports. Domestic demand has been static around 60,000 tonnes per annum.

Production reached a record high of 2.15 lakh tonnes in 1988-89. The year 1994-95 (1.8 tonnes) saw a decline.

India's share in world exports is estimated to be around 2.3 per cent. Export during 1992-93 was 113,602 tonnes valued at Rs. 381.3 crore. However, in 1993-94, the exports rose to 135,626 tonnes and export realisation rose to Rs. 581.8 crore due mainly to high global prices.

In 1994 there had been an overall shortage in the global coffee supply caused by production losses in major growing countries and deliberate retention in some others. Consequently, prices rose to an eight-and-a-half-year high with no signs of abatement in sight. Brazil, the

Coffee Production

Season/Year	Production
1950-51	18,893
1985-86	122,450
1986-87	192,094
1987-88	122,713
1988-89	215,000
1989-90	118,053
1990-91	169,726
1991-92 ¹	174,000
1992-93 ¹	161,500
1993-94 ¹	212,000
1994-95 ²	180,100

(in Tonnes) ¹Revised Estimate ²Blossom Estimate

largest producer accounting for a third of the global output, was hit by frost, worse than that of 1981, which reportedly halved the output. The situation was also not rosy in Colombia, Africa and Indonesia. The US Department of Agriculture has projected a fall of seven million bags (60 kg) from its earlier estimate of 97.6 million bags for the 1993-94 season and a deficit of nine million bags for the 1994-95 season.

Due to the general shortage of coffee in the world market in 1994, and the raising of Free Sales Quota of domestic production to 50 per cent, domestic coffee prices rose very sharply.

The Government, therefore, put quantitative restrictions on exports and a ceiling of 110 thousand tonnes was announced for the 12 month period of January-December 1994. This ceiling was subsequently enhanced to 120 thousand tonnes. Some grades of coffee were banned from export. However, these restrictions have since been removed with effect from January 1, 1995.

Rubber

India which ranks 4th in world rubber output has now bagged the number one position productivity with 1265 kg. per hectare of cultivation. Thailand, Indonesia and Malaysia rank the first, second and third in total world production.

World Rubber Production

(In Thousand metric tonnes)

Country	1993	1994
Thailand	1551	1721
Indonesia	1301	1361
Malaysia	1074	1101
India	428	464
China	326	335
Philippines	56	58

Vietnam	90	88
Sri Lanka	104	104
Nigeria	105	105
Cambodia	31	42
Liberia	3	31
Brazil	27	28

Total 5300 5710**

* ** including other countries not reported separately

Source: "Rubber Statistical Bulletin" of the International Rubber Study Group.

World Rubber Consumption

(in '000 metric tonnes)

Country	1993	1994
USA	967	1002
Japan	631	640
China	650	725
India	444	473
Rep. Korea	271	290
Malaysia	269	292
Germany	175	178
France	169	180
Brazil	125	132
U.K.	119	124
Italy	108	100
Taiwan	109	105
C.I.S.	36	20

Total 5390 5630**

* ** including those countries not reported separately.

Natural rubber is a vital raw material for the road transport industry. Currently 95 per cent of the natural rubber demand in the country is met by indigenous production. Nearly 85% of rubber is grown by small growers owning less than a hectare of land.

Rubber is mainly grown in the southern states of Kerala, Tamil Nadu and Karnataka. Kerala accounts for more than 90 per cent of total output. The total area under rubber cultivation in India at the end of 1994-95 was 515,572 ha. Productivity per hectare rose to 1,265 kg per year.

Area under rubber, India

Year	Total Area (in ha.)	Tappable Area (in ha.)	Yield/ha. (kg)
93-94	508,420	435,160	1,215
94-95	515,572	471,815	1,265

Rubber plantations are predominated by small holders numbering more than 8 lakhs and they share about 84% of total rubber area.

The per capita consumption of rubber in India during 1994 was 0.62 kg.

About 800,00 small famers with small holdings depend solely on rubber for their livelihood.

Rubber plantations directly employ 0.35 million workers and rubber product industry supports an additional 0.32 million workers.

Rubber contributes almost one fifth of the economy of the South Indian state of Kerala.

The figures for production/consumption of natural rubber since 1984-85 are as under:

Rubber production and consumption, India

Year	Production (Tonnes)	Consumption (Tonnes)
84-85	187,000	220,000
85-86	200,465	235,440
86-87	219,520	257,305
87-88	235,000	287,000
88-89	259,172	313,830
89-90	297,000	341,000
90-91	330,000	364,310
91-92	365,000	380,150
92-93	393,490	414,105
93-94	435,160	450,480
94-95	471,815	485,850
95-96*	511,000	530,000

* Estimate

Since 1978, India has become a net importer of rubber since consumption has been increasing rapidly. The imports of natural (NR) and synthetic rubber (SR) is given below:

Imports of Rubber, India

Year	NR (Tonnes)	S.R. (Tonnes)
1984-85	37,461	30,248
1985-86	41,431	39,086
1986-87	45,356	32,600
1987-88	53,685	30,100
1988-89	59,835	33,950
1989-90	44,445	39,000
1990-91	51,942	51,880
1991-92	14,500	39,800
1992-93	16,448	50,118
1993-94	21,384	63,000
1994-95	8,531	64,437

In May, 1995 price of natural rubber in India was between Rs. 60,000 and Rs. Rs. 70,000 per tonne, against the bench-mark price of Rs. 24,900 fixed in 1993.

Export The export of rubber products which in 1991-92 was worth Rs. 313.39 crores has almost trebled to Rs. 914.36 crores during 1994-95 licensed rubber goods manufacturers

in India numbered 5408 at the close of 1994-95. The majority of them are small scale operators making use of only less than 100 tonnes of NR per year. About 40 large manufacturing units alone consume 65% of the total consumption. There were about 8295 licensed dealers and 161 processors at the end of 1994-95.

India has a well-established rubberwood processing industry with about 40 units replete with state of the art processing systems, mostly situated in southern India, the rubber plantation heartland. Rubber plantation area is expected to touch 675,000 ha. by 2000. The potential area available for planting rubber is about 12 m. hectares. India with a systematic replanting programme and a healthy growth rate of 5% offers an assured supply of nearly 0.65 m. cubic metres of timber annually. Though the entire rubberwood produced is utilized, only less than 5% is processed for value added end products. Thus the scope of the rubberwood processing industry is enormous.

A World Bank-assisted five-year rubber project has been under implementation since 1993-94. The main components of the project are:

1. Replanting of old rubber trees in 40,000 hectares.
2. New planting in 30,000 hectares.
3. Productivity enhancement in 60,000 hectares of mature areas of small holdings.
4. Expansion of rubber wood processing facilities.
5. Development of women and tribal people particularly in Tripura.

A Block Plantation Project for economic settlement of Tribals was started in 1992 in collaboration with the Government of Tripura. The entire cost of planting and maintenance is subsidised. Among the non-traditional areas, north eastern region of India is the most suited for rubber cultivation with tremendous potential.

Spices

With a production of 20 lakh tonnes of different spices, India tops both in output and export.

India's share in the world market increased from 22 per cent in 1990-91 to 33 per cent in 1991-92. Spices exports from India have shown an enviable growth in the last two decades. From 47,906 tonnes valued at Rs. 38.8 crore in 1970-71, the exports increased to 92,509 tonnes valued at Rs. 116.76 crore in 1980-81 and further to 1.23 lakh tonnes valued at Rs. 382.06 crores.

The Spices Board formed on 26th February, 1986 by the merger of the Spices Export Promotion Council and the Cardamom Board, launched a brand promotion scheme during 1991-92 for Indian spices. Indian exporters, whose brands

are registered with the Spices Board, are registered with the Spices Board, are given financial support to undertake long-term market development programmes and campaigns in overseas markets in order to create brand loyalty to Indian spices among consumers abroad. Exporters will be given interest-free loans to the extent of 50 per cent of the cost of the proposed brand promotion programme abroad by the Board.

Export of spices touched an all-time high of Rs. 607.34 crore during 1994-95 against Rs. 547.25 crore in the previous year. The target for the year stood at Rs. 560 crore.

Pepper accounted for 37% of the total export revenue, Rs. 226 crore in 1994-95 (against Rs. 184.57 crore in 1993-94).

Increase in exports of spices to South Africa and Russia was substantial.

India exported 30,950 mts. of black pepper valued at Rs. 188.35 crore during April, 1994 to Feb. 1995, against 44,795 mts. (value Rs. 170.46 crore) for the corresponding period the previous year.

The total production of pepper in India is in the region of 55,000 tonnes. With carry over stocks, total production is around 155,000 tonnes against the annual demand of 200,000 tonnes.

India's share in world production is around 50 per cent.

Spices Export, India

Item	Export 1993-94	Export 1992-93	Tonnes Value (Rs. Crores)
Pepper	46,650	25480	179.67
Cardamom Small	342	175	13.86
Cardamom Large	1,745	1270	11.57
Chillies	33,450	16850	75.59
Ginger	17,150	8220	21.59
Turmeric	25,250	18950	52.0
Coriander	12,750	13550	19.47
Cumin	3,150	2080	15.38
Celery	3,525	2750	5.81
Fennel	2,625	2650	6.06
Fenugreek	4,675	4850	6.81
Other Seeds	1,885	1000	3.51
Garlic	2,610	7700	3.17
Other Spices	13,650	13700	21.65
Curry Powder	3,650	2900	13.15
Mint	1,555	NA	21.62
Spices Oil & Oleoresins	1270	1140	69.21
Total	1,75,532	1,23,265	540.12

All figures provisional. Source: Cardamom Board.

To improve the quality of spices exported from the country, the Spices Board has taken u

For and against tobacco

Tobacco growers see the anti-smoking lobbyists as their enemy number one. They were using misleading figures and wrong data, to win their case against tobacco, the International Tobacco Growers' Association (ITGA) has said.

The ITGA, which held its annual conference in Bangalore in November, 1995 focussed on the proposed ban on advertising of tobacco products in various countries and other "politically motivated restrictions" to the growth of the tobacco industry.

Growers worldwide would take it upon themselves to repudiate reports based on wrong and exaggerated data. The industry wanted governments to adopt a balanced approach to policy-making, striking a balance between the health aspect and the socio-economic ramifications of tobacco production.

ITGA said the World Health Organisation (WHO) has released inaccurate figures. Mr. Hanisi Walder, ITGA chief executive said WHO was forced to admit later that its statistics were overestimated.

The industry had impressed upon the United Nations the need to treat tobacco not just as a health issue but also look at it from

the socio-economic point of view. This was borne out by the fact that the United Nations Social and Economic Council had taken over from WHO the task of bringing out a report on tobacco.

On the criticism that the industry was environmentally harmful and was causing deforestation, the ITGA spokesman said only 11 per cent of the tobacco was cured using wood fuel and several growers using wood were doing so on a sustainable basis. He added ITGA would insist on the right to farmers to grow and reap in free market conditions. Such forces alone can best decide production, cultivation of varieties of low nicotine and tar content, choice of fuel and marketing.

He said that in Canada, extreme restrictions on tobacco and high taxation rates had resulted in contraband trade and associated violence. The Canadian Government had to withdraw the law.

According to Mr. Walder, the world supply of tobacco matched the demand. The Food and Agriculture Organisation had predicted a 2 per cent increase in consumption, though the figure would be closer to 1.5 per cent.

a scheme to give grant in aid for technology transfer and process upgradation by exporters to produce value-added products. The stress is on the development of products free from contamination and conforming to the changing market requirements.

The Board has also started compact area demonstration plots for various spices like mint, seed spices, garlic, saffron, cumin, fennel and ladadong variety of turmeric. The department of biotechnology has also sanctioned a Rs. 85 lakh tissue culture vanilla product plan for the Board. The project will cover 150 hectares in the states of Kerala, Tamil Nadu and Karnataka.

Cardamom

Cardamom production in India is mainly confined to Kerala. Until 1981-82, India was the world's largest producer and exporter of small cardamom. Thereafter, Guatemala forged ahead to take over the leadership. The substantial improvement in Guatemala's export of cardamom is mainly due to a high level of production. India's decline in the production of cardamom is accompanied by

increased domestic consumption, and an abnormal rise in domestic as well as export prices adversely affecting export performance of cardamom.

India's share in the export of cardamom reached a maximum of 3,272 mt. in 1985-86 and minimum of 180 mt in 1989-90, whereas Guatemala touched a new high of 13,163 mt and low level at 3,360 mt in 1980-81. These figures pinpoint that no serious efforts have been made to ensure surplus production of exportable variety of cardamom on a continuous basis. As a result, India has been losing its grip in the international market.

Guatemala's high productivity (i.e. 250 kg/hectare) which is five times higher than that of India, has helped them to trade its produce at affordable prices. Hence, India's export price of cardamom has been higher than that of Guatemala throughout the period 1980-93. That the domestic market is growing fast is a welcome development.

Cardamom has suffered serious setbacks. Among the threats to production are the vagaries of the monsoon, of drought, pests and diseases, non-availability of high yielding varieties

of seed for field adoption and a lack of scientific know-how. India has to increase production through higher productivity.

Fruits and Nuts

Immense agro-climatic diversity enables India to produce a large variety of horticultural crops such as fruits, vegetables, , flowers, plantation crops-coconut, cashewnut, coca, arecanut - and many types of spices, medicinal and aromatic plants. Currently these crops are estimated to cover 13.6 million hectares, yielding an annual output of 106 million tonnes which is the third largest output after Brazil and China. India accounts for 17 per cent of the world's coconut production, and 40 per cent of the world's cashew, besides being the largest producer of ginger, turmeric and coriander.

Production of about 33 million tonnes of fruit in 1992-93, brought India close to the top rank currently enjoyed by Brazil as the world's largest producer of fruits. Coconut production rose to 11,375 million nuts by 1992-93, largely due to gains in productivity - from 5,445 nuts per hectare in 1981-82 to 7,034 nuts in 1992-93. the Eighth Plan target (1992-97) for annual output is 15,000 million nuts.

Cashewnut production in 1992-93 reached 3.5 lakh tonnes. In 1993-94, 72,450 tonnes were exported, earning Rs. 1,044 crore in foreign exchange. Even though India is the largest exporter of processed cashewnut, the domestic output falls short of the internal demand of the processing industry and hence raw nuts are also imported. The Eighth Plan target of output at 4.73 lakh tonnes will still fall short of the demand estimated at 6 lakh tonnes.

Labour

Labour policy in India derives its philosophy and content from the Directive Principles of the Constitution and has been evolving in response to specific needs of the situation to suit the requirement of the planned development and social justice. It has been envisaged that growth of the economy would not only increase production but also absorb the backlog of the unemployed and underemployment and a substantial proportion of additional labour force.

Productivity While India, according to World Competitiveness Report 1994 has registered high rate of change in overall productivity (total factor productivity) — 5.68% in terms of GDP per person, labour productivity as such has remained low and compares unfavourably with some of the neighbouring Asian countries like Thailand (11.2%), Pakistan, Sri Lanka, Bangladesh etc. and higher than that of South Korea (5.1%), Taiwan (4.98%) and China (2.67%). [Productivity is a measure of efficiency with which resources - both human and material - are converted into goods and services.] Over the years, mining, manufacturing and service sector seem to have registered higher growth rate of productivity than agriculture. Within the manufacturing sector, refinement of sugar, industrial machinery and textiles of wool, silk and synthetic fibres seem to have registered higher increase in productivity than others. The National productivity Council were continued to make its systematic contribution to the dissemination of

knowledge and experience in productivity through its regional formations. The services of the National Productivity Council are also secured by the Employees' Provident Fund Organisation to advise on productivity linked service infrastructure.

Based on purchasing power parity, the labour productivity in India compares unfavourably with the neighbouring Asian countries. Indian workers' output per year in 1990 was US\$ 3261 — lower than even Sri Lanka (7159), Pakistan (6935), Bangladesh (3959) etc.

Social Security Government of India on November 16, 1995, implemented a new pension scheme in place of Family Pension Scheme (FPS) which was launched in 1971. The existing corpus of the FPS, about Rs. 90 billion would form the initial corpus of the new pension scheme. The Provident Fund Schemes had a coverage of 18.5 million subscribers in 140,000 establishments. An amount of Rs. 405.02 billion PF monies were under investment on March, 1994.

The Payment of Gratuity Act was amended in May, 1994 scrapping the eligibility wage ceiling for the application of the law and enhancing the ceiling on Gratuity Payment from Rs. 50,000 to Rs. 100,000.

Unorganised Labour The majority of the work force of India is unorganised in nature 80% living in rural areas, 64% being engaged in agriculture, 85% being self-employed or employed on casual wages and only 15% being on regular salaried employment.

Bonded Labour The centrally sponsored programme for the rehabilitation of bonded labourers continued to be implemented. According to the data furnished by the State Governments only 7000 bonded workers remained to be rehabilitated.

Women and Work The strength of women in the work force is 90 million. In terms of work participation, rate of unemployment and quality of employment women do not compare favourably with men, though of course, the annual rate of growth of employment of women, particularly, the educated women, has been of higher order than that of men.

Women employed in the organised sector are slightly over 4 million strong, constituting marginally more than 15% of the total organised sector employment in the country. In the organised sector, public sector employment in the country accounts for more employment of women than the private sector. Women's employment is the highest in the Southern zone and the lowest in the North Eastern zone. Large scale employment of women is seen mainly in the plantation industry (52% of the total work force), apart from Agriculture.

Access of women to employment compared to men is lower because of their lower access to education and skill development.

Housing

Housing is a State subject. Housing is an integral part of overall policy of improvement of human settlements and economic development.

India faces a huge backlog of 31 million units as seems from the growth of slums, inadequate services, rising cost of shelter and speculation and adequate supply of formal housing. Keeping in line with UN declaration of Global Shelter Strategy 2001 and policies by Central and state governments in successive Five Year Plans, and in 1994 a National Housing Policy was formulated by the GOI. The reflection of the policy document is seen in the Eighth Plan. This is elaborated in terms of Agenda 21 adopted in Earth Summit. The long term goal of the NHP is to reduce houselessness, to improve the housing conditions of the inadequately housed and to provide a minimum level of basic services and amenities to all. It emphasises new construction and upgradation and housing for rental purposes. It is recognised that the magnitude of the problem calls for the involvement of various agencies including the Government,

Children and Work According to the 1981 Census, the estimated figure of working children was 13.6 million. This figure rose to 17.02 million according to the estimates of the 43rd round of the National Sample Survey conducted in 1987-88. The census data of 1991 on the child labour has not yet been compiled by the Registrar General of Census operation. The State with the highest child labour population in the country is Andhra Pradesh — 1.95 million (1981). Other States with more than one million are Bihar, Karnataka, MP, Maharashtra, Rajasthan and UP. Over 90% of the Child Labour population in the country is to found in 11 States.

Employment By stressing the growth of employment intensive sectors, the employment strategy envisaged in the Eighth Plan is expected to bring about a rate of growth rate of employment of the order of 2.6% to 2.8% per annum corresponding to expected average annual rate of overall economic growth of 5.6%. On an average, 8.5 million additional employment opportunities per year are expected to be generated during the Eighth Five Year Plan. It is now estimated that additional employment opportunities of the order of 6.4 million and 5.6 million were created in 1992-93 and 1993-94 respectively.

cooperatives, communities and private sector.

The physical performance under the scheme of rural house sites-cum-construction assistance indicates that the weaker sections have been given due priority. The achievement of 0.122 million dwelling units for economically weaker sections well exceeded the target of 96,000 units in 1993-94. Under Indira Awas Yojana (IAY), introduced in 1985-86, 0.306 million houses were built during 1993-94, as against the target of 0.25 million. 60,000 units could be built for the low income group housing.

In order to encourage housing activity, the RBI has announced that bank lending to the housing sector (up to Rs. 0.2 million in case of new house and Rs. 25,000 for repairs) would be treated as priority sector lending. The ceiling for housing loans is fixed at Rs. 1 million.

The National Housing Bank was established in July 1988 as a subsidiary of RBI. It mobilises resources and channelises them to various schemes of housing and infrastructure and providing refinance for direct housing loans given by commercial banks and non banking

institutions. Since its inception and up to March 1994, the NHB has provided refinance assistance of the order of Rs.19.29 billion apart from Rs.1.96 billion advanced for various land development and shelter projects.

The HUDCO also provides loans and techni-

cal support to state and local agencies for housing and infrastructure development. Since its inception in 1970 and up to October 1994, total loans amounting to Rs. 94.76 billion were sanctioned, and Rs. 65.22 billion actually disbursed for the construction of over 5.66 million residential units.

Mass Communication

Mass Communication plays a vital role in creating people's awareness about policies and programmes of their development and in motivating them to be active partners in the nation building endeavour. In the Indian context, a skillful synthesis between traditional and folk forms of communication on the one hand and the modern audio-visual media including Satellite Communication on the other, is being attempted.

Akashvani Broadcasting started in India in 1927 with privately owned transmitters at Bombay and Calcutta. The Government took over the transmitters in 1930 and started operating them under the name of Indian Broadcasting Service. It was changed to All India Radio in 1936 and it also came to be known as Akashvani since 1957. AIR is servicing an effective medium to inform and educate people besides providing wholesome entertainment.

AIR network comprises 160 broadcast centres consisting of 152 full-fledged stations, 3 relay centres, 2 auxiliary centres and 3 exclusive Vividh Bharati commercial centres. These are 141 mw transmitters, 43 short-wave transmitters and 73 FM transmitters. The present national coverage is 80.2% by area and 96.3% by population.

Doordarshan Television started in India as an experimental service in September 1959, with a limited transmission on three days a week. The regular service began in 1965. In 1976, Television was delinked from AIR to form an independent organisation — Doordarshan. It

witnessed unprecedented growth after 1982. As on 22 February 1994, Doordarshan is reaching 83.6% of the population and 64.5% of the area of the country through a network of 563 transmitters. There are 31 programme production centres at different parts of the country.

Doordarshan viewership has increased over years. There are more than 40 million households with TV sets and over 62,000 community sets. Doordarshan telecasts more than 110 hours of programmes every week on its primary service. The total output on the satellite service exceed 400 hours a week.

40 m. TVs The number of Indian homes with TVs is estimated to be about 40 million by the end of 1994 and this is growing at the rate of 10 per cent annually.

Maharashtra topped the country's list of TV owners with 5.8 million sets according to *Doordarshan 1994*, brought out by its audience research unit. Delhi has 1.72 million sets. The maximum number of TV-owning households are in the South with 11.28 million. Tamil Nadu tops the list with 3.73 million households, followed by Andhra Pradesh with 3.58 million, Karnataka 2.50 million, Kerala 1.40 million, Pondicherry 0.65 million. The western region was in second place with 11.04 million households possessing TV sets, followed by northern region with 10.12 million, eastern region 6.9 million and north eastern region 916, 000.

Out of a rural population of 627 million, 110 million viewers were hooked to Doordarshan.

Postal Services

India has the largest network of Post Offices in the world. By the end of March 1994, the national postal network had over 150,000 post offices. The long term objective is to locate post office within 3 kilometers of every village. During 1993-94, a total of 637 additional extra-

departmental branch post offices and 116 departmental sub-post offices were sanctioned. The Department now seeks to accelerate this effort by providing basic postal facilities on a contractual basis by utilising the existing infrastructure of Panchayats in these areas. The

anchayat Dak Sewa Scheme, formulated in this regard, has the twin advantage of reducing dependence on budgetary resources for expanding postal facilities to needy areas and generating employment opportunities in such areas.

Taking note of the rapid changes in the information and communication technology, the Department of Posts has given thrust to its programme of modernisation for providing new value added services to customers.

Speed Post Traffic is growing at a rate of 47% annually. During 1993-94, the total revenue was Rs. 501.3 million and the traffic generated was 1.9 million articles.

Post Office Savings Banks operate through the wide network of post offices, of which 89% are located in rural areas. The total outstanding balance at the end of 1993-94 in various saving schemes was Rs. 672.93 billion. A new scheme called Mahila Samridhi Yojana was introduced in Oct 1993 in order to empower adult rural women financially. As on March 31, 1994, Rs. 92

million was collected in 730,000 accounts under this scheme.

Money order services provide socially useful means of cash transfer. In order to speed up money order transmission, a project for the use of satellite channels is under implementation. The pilot project covering 6 centres has already been successfully implemented and 20 more such centres are proposed to be set up in 1994-95. The network of VSATs (Very Small Aperture Terminals) set up for this purpose is to be expanded and other value-added services like hybrid mail, premium saving accounts have been introduced in this network.

The Government has been considering a limit to its monopoly control on carriage of letters, thus paving the way for according a formal status to the Courier industry. In yet another move towards liberalising state owned postal services, the Government is also considering to allow the private sector to get into the distribution of postal stationery on a commission basis.

The Media

The print media in India consists of 41 centenarians. The Gujarati daily *Bombay Samachar* (circulation 1,59,236) published from Bombay is the oldest existing newspaper not only in India but in Asia. It was established in 1822. The first Newspaper (weekly) published in India *Bengal Gazette* (also known as Hicky's Gazette) was in English in 1800 from Calcutta. The editor was an English-

man - James Hicky. *Digdarshan* (Bengali) was the first language newspaper to come from Calcutta (1818). The Registrar of Newspapers in India (RNI) was set up in 1956. The RNI prints newsprint and recommends import of printing machinery for newspapers. Every newspaper/periodical has to be registered with the RNI.

According to official sources, there were 1557 newspaper establishments in the country in 1993. As per the Registrar Newspapers annual report 'Press in India - 1992', the number of newspapers in RNI's live Register is

38,597. This includes publications of different periodicity.

The circulation of newspapers/periodicals as on 31 December 1992 was 6,36,67,000. (1989 - 5,82,84,000). According to the circulation data available 142 come in the category of big newspapers (having circulation of more than 75,000 copies) 386 in medium category (25,001 - 75,000) and 3500 small category (up to 25,000).

Largest Circulated Dailies, July-Dec.1994

Times of India (6 Units)	English	813,166
Malayala Manorama (5 Units) *	Malayalam	779,170
Gujarat Samachar (5 Units)	Gujarati	657,930
Eenadu (7 Units)	Telugu	558,463
Indian Express (16 Units)**	English	544,112*
Dainik Jagaran (9 Units)	Hindi	542,148
Mathrubhumi (5 Units) ♦	Malayalam	513,643
The Hindu (7 Units) ♦♦	English	497,650
Ananda Bazar Patrika (1 Unit)	Bengali	484,886
Aaj (9 Unit)	Hindi	473,173
Hindustan Times (2 Units)	English	409,446
Daily Thanthi (11 Units)	Tamil	386,288
Navbharat Times (4 Units)	Hindi	378,283
Rajasthan Patrika (5 Units)	Hindi	365,420
Navkal (1 Unit)	Marathi	350,450

* now 7 editions ** now 17 editions * as on Jan-Jun 1994 ♦ now 6 editions
♦♦ now 8 editions

Uttar Pradesh has the largest number of newspapers/periodicals - 4631.

Weeklies *Malayala Manorama* is the largest selling weekly in the country (ABC July-Dec 1994: 13,14,878).

Fortnightlies and Monthlies *India Today* (English) commands the largest circulation of 354,048 copies among fortnightlies. *Manohar Kahaniyam* with 343,711 copies and *Vanitha* with 317,748 copies are the second and the third.

Manorama Year Book (English) has been certified as the largest selling publication of its kind in India (ABC 1994: 153,326 copies)

India has 4 news agencies — Press Trust of India (PTI), United News of India (UNI), Samachar Bharati and Hindustan Samachar.

PTI was set up on August 27, 1947. It took over from the Associated Press of India (API) and Reuters. It has 124 news bureaux in the country including computerised offices in the four metropolitan cities.

UNI was registered as a company in 1954 and started news operation in 1961. In 1982 it launched its Hindi news services UNIVARTA. It operates a news service to the media in four Gulf countries.

Press Information Bureau is the central agency of the Government of India to disseminate information on its policies, programmes, decisions and activities. With a countrywide telephone network and airbag facilities, PIB reaches newspaper organisations all over the country. PIB distributes its press material to over 8,000 newspaper establishments. PIB arranges photographic coverage of Government activities.

Publication Division, (set up in Jan. 1941 under Home Dept.; then called Foreign Branch of the Bureau of Public Information), a media unit of the Ministry of I&B (since Dec. 1944), provides up-to-date and authentic information on all subjects of national importance through books.

Press Council of India owes its origin to the recommendations of the First Press Commission. The Press Council of India Act, 1965 was enacted and under it the first Press Council was set up in 1966. This body continued to be in existence till Dec. 1975. The present Council was set up under the Act 37 of 1978. It is meant to safeguard the freedom of the Press, maintain and improve the standard of newspapers and news agents. The Council consists of a Chairman and 28 other members of whom 20 represent the Press. The present Chairman is Justice P.B. Sawarkar.

Number of Newspapers in India*

(Language and Periodicity)

Languages	Dailies	Tri-Bi- Weeklies	Weeklies	Fort- nightlies	Month- lies	Quart- erlies	Others	Annuals	Total
English	241	18	611	474	2,090	1,006	574	125	5,129
Hindi	1,541	106	5,504	1,840	2,150	364	113	20	11,638
Assamese	10	2	48	29	41	10	8	1	132
Bengali	74	11	497	370	572	347	115	8	1,987
Gujarati	73	7	276	116	384	47	33	9	955
Kannada	184	5	273	161	371	34	15	2	1,054
Kashmiri	0	0	1	0	0	0	0	0	1
Konkani	0	0	2	1	1	0	0	0	4
Malayalam	178	1	147	133	575	41	16	8	1,390
Manipuri	10	0	3	5	3	3	2	0	26
Marathi	215	17	551	133	394	85	34	81	1,500
Nepali	1	2	9	4	7	16	5	0	40
Oriya	41	2	77	53	212	72	17	4	479
Punjabi	76	15	285	62	201	25	17	1	667
Sanskrit	3	0	6	2	13	13	3	0	40
Sindhi	8	0	30	9	31	6	2	0	86
Tamil	289	34	307	187	563	20	9	2	1,394
Telugu	77	2	201	143	322	20	6	1	872
Urdu	373	17	962	277	433	42	13	3	2,120
Bilingual	47	17	433	252	902	272	101	27	2,934
Multilingual	13	4	77	41	189	59	25	7	405
Others	48	11	75	23	101	43	7	0	308
TOTAL	3,502	271	10,375	4,315	9,555	2,525	1,115	299	31,560

*1992 figures.

Cinema

At the turn of this century, when the country was poised for major social and political reforms, a new entertainment form was born in India - the Cinema. The first exposure to motion pictures which India received was in 1896, when the Lumiere Brothers' cinematographe unveiled six soundless short films at Watson Hotel, Esplanade Mansion, Bombay on July 7. And the first exposing of a moving image on a celluloid in camera by an Indian and its consequent screening took place in 1899, when Harishchandra Bhatvadekar (Save Dada) shot and exhibited them under Edison's projecting kinetoscope.

Hiralal Sen and F.B. Thanawalla were two other Indian pioneers engaged in the production of short films in Calcutta and Bombay in 1900. Around 1902, J.F. Madan and Abdullah Kalam launched their career with Bioscope Company of imported short films. In 1912, N.G. Mehta and R.G. Torney made a silent feature film *Pundalik* which was released on May 18, 1913 and it was half British in its make.

Dhundiraj Govind Phalke, more generally known as Dada Saheb Phalke was responsible for the production of India's first fully indigenous silent feature film *Raja Harishchandra* which heralded the birth of the Indian film industry. The film had titles in Hindi and English and was released on May 3, 1913 at the Coronation Cinema, Bombay. In 1917, Bengal saw the birth of its first feature film - *Satyabadi Raja Harishchandra* made by Madan's Elphinstone Cinema Company. In Madras, the first feature film of South India *Keechaka Vadham* was made by Nataraja Mudaliar in 1919.

After stepping into 1920, the Indian cinema gradually assumed the shape of a regular industry. The industry also came within the purview of the law. The new decade saw the arrival of many new companies and film makers. Dhiren Datta (*England Returned*), Baburao Painter (*Avkari Pash*), Suchet Singh (*Sakuntala*), Pandulal Shah (*Guna Sundari*), Franz Osten (*Light of Asia*, *Shiraz*), Ardeshir Irani, and V. N. Santharam were the prominent film makers of the twenties.

The most remarkable thing about the birth of the sound film in India is that it came with a bang and quickly displaced the silent movies. The first Indian talkie *Alam Ara* produced by the Imperial Film Company and directed by Ardeshir Irani was released on March 14, 1931 at the Majestic Cinema in Bombay; The talkie had

brought revolutionary changes in the whole set up of the industry. The year 1931 marked the beginning of the talkie era in Bengal and South India. The first talkie films in Bengali (*Jamai Shasthi*), Telugu (*Bhakta Prahlad*) and Tamil (*Kalidass*) were released in the same year.

The thirties is recognised as the decade of social protest in the history of Indian Cinema. Three big banners - Prabhat, Bombay Talkies and New Theatres gave the lead in making serious but gripping and entertaining films for all classes of the wide audience. A number of films making a strong plea against social injustice were also made in this period like V. N. Santharam's *Duniya na Mane*, Aadmi and Padosi, Franz Osten's *Achut Kanya*, Damle & Fatehlal's *Sant Thukaram*, Mehboob's *Watan*, *Ek hi Raasta* and *Aurat*. For the first time Ardeshir Irani attempted a colour picture in 1937 with *Kisan Kanya*.

The decade also witnessed the release of the first talkie films in Marathi (*Ayodhyecha Raja* - 1932); Gujarathi (*Narasinh Mehta* - 32); Kannada

Indian Feature Films certified during 1993 and 1994

Language	1993	1994
Telugu	148	174
Hindi	182	155
Tamil	168	153
Kannada	78	70
Malayalam	71	70
Bengali	57	44
Marathi	35	22
Oriya	20	14
Punjabi	14	12
Nepali	7	10
Gujarathi	3	6
Assamese	9	6
Bhojpuri	2	4
English	2	4
Rajasthani	5	3
Tulu	1	2
Manipuri	3	2
Haryanvi	1	1
Kodava	1	1
Total	807	753

(Dhurvukumar - 34); Oriya (*Sita Bibaha* - 34); Assamese (*Joymati* - 35); Punjabi (*Sheila* - 35) and Malayalam (*Balan* - 38).

The decade during which the second world war was fought and Indian independence won, was a momentous one for cinematography all over India. Some memorable films were produced during the forties such as Shantharam's *Dr. Kotnis Ki Amar Kahani*, Mehboob's *Roti*, Chetan Anand's *Neecha Nagar*, Uday Shanker's *Kalpana*, Abbas's *Dharti Ke Lal*, Sohrab Modi's *Sikander*, Pukar and Prithvi Vallabh, J.B.H. Wadia's *Court Dancer*, S.S. Vasan's *Chandralekha*, Vijay Bhatt's *Bharat Milap* and Ram Rajya, Raj Kapoor's *Barsaat* and *Aag*.

The first International Film Festival of India held in early 1952 at Bombay had great impact on Indian Cinema. The big turning point came in 1955 with the arrival of Satyajit Ray and his classic *Pather Panchali* which opened up a new path leading the Indian film to the World Film scene. International recognition came to it with the Cannes award for *best human document* followed by an unprecedented crop of foreign and national awards.

In Hindi Cinema too, the impact of neorealism was evident in some distinguished films like Bimal Roy's *Do Bigha Zamin*, *Devadas* and *Madhumati*, Raj Kapoor's *Boot Polish*, *Shri-420* and *Jagte Raho*, V. Shantharam's *Do Aankhen Barah Haath* and *Jhanak Jhanak Payal Baaje*, Mehboob's *Mother India*,

Gurudutt's *Pyaasa*, and *Kagaz Ke Phool* and B.R. Chopra's *Kaanoon*; The first Indo-Soviet co-production *Pardesi* by K.A. Abbas was also made during the fifties. The transition to colour and the consequent preference for escapist entertainment and greater reliance on stars brought about a complete change in the film industry.

The sixties was a decade of mediocre films made mostly to please the distributors and to some extent, meet the demands of the box office. The sixties began with a bang with the

release of K. Asif's *Mughal-E-Azam* which set record at the box-office. It was followed by notable productions which include romantic musicals and melodramas of a better quality. Raj Kapoor's *Jis Desh Mein Ganga Behti Hai*, *Sangam*, Dilip Kumar's *Gunga Jumna*, Gurudutt's *Sahib Bibi aur Gulam*, Dev Anand's *Gunga*, Bimal Roy's *Bandini*, S. Mukherji's *Jungle*, S. Dutt's *Mujhe Jeene Do* and the experimental *Yaadein*, Basu Bhattacharya's *Teesri Kasam*, Pramod Chakravorty's *Love in Tokyo*, Ramana Sagar's *Arzoo*, Sakhti Samantra's *Aradhana*, Hrishikesh Mukherji's *Aashirwad* and *Ana*, B.R. Chopra's *Waqt*, Manoj Kumar's *Upkar*, and Prasad Productions *Milan* were the significant Hindi films of the decade.

Among the regional languages, Malayalam cinema derived much of its strength from literature during the sixties. Malayalam cinema hit the head lines for the first time when R. K. Kariat's *Chemmeen* (1965) won the President's Gold Medal. Towards the end of the decade Mrinal Sen's *Bhuvan Shome*, signalled the beginning of the new wave in Indian Cinema.

The New Indian Cinema emerged as a reaction to the popular cinema's *Other Worldliness* is a cinema of social significance and artistic sincerity, presenting a modern, humanist perspective more durable than the fantasy world of the popular cinema.

Satyajit Ray, Ritwik Ghatak and Mrinal Sen were the founding fathers of the new cinema in India. Acclaimed as India's foremost director, Satyajit Ray has made 30 feature films and documentaries, tackling a wide range of rural and urban historical themes. His cinematographic places him away from the inheritors of the neorealist school, and yet his films are infused with an unusual humaneness. *Pather Panchali*, *Apur Sansar*, *Charulata*, *Jalsaghar*, *Goopy Ganga Bagha Byne*, *Seemabaddha*, *Jana Aranya*, *As Sanket* and *Agantuk* are some of his outstanding films. He was fortunate enough to present

Number of films certified in South India from 1984 to 1994

Year	Tamil	Telugu	Kannada	Malayalam	Hindi	English	Tulu	Other
1984	148	171	80	121	34	-	1	
1985	190	198	70	137	39	-	1	
1986	154	192	59	130	42	1	1	
1987	165	162	88	103	50	1	1	
1988	152	162	37	83	46	2	1	1 (Mar)
1989	146	152	72	97	49	2	1	
1990	193	202	81	126	64	2	1	1 (Gujar)
1991	182	172	91	94	77	1	-	
1992	185	146	93	89	46	2	-	3 (Ot)
1993	167	147	78	71	32	2	1	6 (ot)
1994	151	171	70	70	24	2	2	9 (Ot)

films in almost all the leading film festivals of the world. The national and international awards won by Ray are numerous.

Ritwik Ghatak swooped on the Indian scene with new dynamism. His films constitute a record of the traumas of change from the desperation of the rootless and deprived refugees from East Bengal. (*Meghe Dhaka Tara*, *Ajantrik*, *Komal Gandhar*, *Subarnarekha*). Mrinal Sen is the ebullient one - experimenting with neorealism as well as new wave and fantasy. His notable films are *Bhuvan Shome*, *Chorus*, *Mrigaya*, *Ek Din Pratidin*, *Akaler Sandhane*, *Kharij & Khandahar*. He has also won several national and international awards.

In Bombay, a new group of film makers emerged on the Hindi cinema. Notable among them are Basu Chatterji (*Sara Akash*), Rajinder Singh Bedi (*Dastak*), Mani Kaul (*Uski Roti*, *Duvidha*), Kumar Shahani (*Maya Darpan*), Avtar Kaul (*27-Down*), Basu Bhattacharya (*Anubhav*), M.S. Sathyu (*Garam Hawa*), Shyam Benegal (*Ankur*), and Kanthilal Rathod (*Kanku*). In Calcutta, following the trend set by Ray, Ghatak and Sen, Tapan Sinha and Tarun Majumdar also made some note worthy films. (*Kabuliwala*, *Hatey Bazarey*, *Harmonium*, *Safed Haathi*; *Balika Bodhu*, *Nimantran*, *Ganadevta*, *Dadar Kirti*).

The seventies has further widened the gap between multistar big budgeted off beat films. The popular Hindi hits of the decade include Kamal Amrohis *Pakeeza*, Raj Kapoor's *Bobby*, Devar's *Haathi Mere Saathi*, Ramesh Sippy's *Sholay*, *Zanjeer*, *Deewar*, *Khooon Pasina*, *Yaadon Ki Baarat*, *Kabhi Kabhi*, *Dharamveer*, *Amar Akbar Antony*, *Hum Kisise Kum Nahin*, and *Muquaddar Ka Sikandar*. Of these majority of the films were action oriented with revenge as the dominating theme.

Down in the South, the new wave cinema



Pather Panchali

originated in Karnataka and Kerala. Pattabhi Rama Reddy's *Samskara* (70) and Adoor Gopalakrishnan's *Swayamvaram* (72) were the trend setters in Kannada and Malayalam respectively. This continued with a series of socially conspicuous films like M.T. Vasudevan Nair's *Nirmalyam*, B.V. Karanth's *Chomana Dudi*, Girish Karnad's *Kaadu*, Girish Kasara Valli's *Ghatasradha*, G.Aravindan's *Uttarayanam* and *Thamp*, K. Balachander's *Arangetram*, *Avargal* and *Apoorva Ragangal*, Adoor's *Kodyettam*, K.G. George's *Swapnadanam* and P.A. Backer's *Chuvanna Vithukal* and G.V. Iyer's *Hamsageethe*.

The Hindi avant garde or new wave seems to have reached its bloom period towards the end of the seventies with the coming of film makers like Govind Nihalani (*Aakrosh*), Saeed Mirza (*Albert Pinto Ko gussa Kyon aata hai*, *Aravind Desai ki Ajeeb Daastan*), Rabindra Dharmaraj (*Chakra*), Sai Paranjpe (*Sparsh*), Musafar Ali (*Gaman*) and Biplab Roy Chowdhari (*Shodh*). The movement spread to the other regional cin

emas such as Marathi, Gujarathi, Assamese, Oriya and Telegu. Directors like Jabbar Patel (*Samna, Simhasan*), Ramdas Phuttane (*Sarvasakshi*), Ketan Mehta (*Bhavni Bhavai*), Babendranath Saikia (*Sandhya Rag*), Jahnu Barua (*Aparoop, Papori*), Manmohan Mohapatra (*Klanta Aparanha, Majhi Pahacha*), Nirad Mohapatra (*Maya Miriga*) and Gautam Ghose (*Ma Bhoomi*) came to the scene with their films.

Also from the South came film makers such as Jayakantan, John Abraham, Bharathan, Padmarajan, Balu Mahendra, Bharathi Raja, T.S.Ranga, T.S.Nagabharana, K.R. Mohanan, G.S.Panicker, Chandrasekhara Kambur, P.Lankesh, C. Radhakrishnan and Bhagyaraj who presented significant films like *Unnai Pol Oruvan*, *Agraharathil Kazhuthai*, *Prayanam*, *Peruvazhiambalam* and *Oridathoru Phayalvan*, *Kokila*, *16 Vayathinile* and *Kizhakke Pokum Rail*, *Geejegana Goodu*, *Grahana*, *Aswathama*, *Ekakini*, *Kaadu Kudre*, *Pallavi*, *Agni*, *Suvar Illatha Chithrangal* and *Mundani Mudichu*.

The new cinema movement continued with full spirit in the next decade (eighties) also. Shyam Benegal presented some good movies like *Manthan*, *Bhumika*, *Nishant*, *Junoon*, and *Trikal*. *Nihlani's Aaghat* and *Tamas* were remarkable works. Other important films with new style of treatment include *Damul* (Prakash Jha), *36-Chowringhee Lane* (Aparna Sen), *New Delhi Times* (Ramesh Sharma), *Mirch Masala* (Ketan Mehta), *Rao Saheb* (Vijaya Mehta), *Debshishu* (Utpalendu Chakraborty), *Massey Saheb* (Pradeep Kishan), *Trishagni* (Nabayendu Ghosh), *Ijaazat* (Gulzar), *Umrao Jaan* (Musafir Ali), *Dakhal*, *Paar* (Gautam Ghose), *Dooratwa*, *Neem Annapurana*, *Andhi Gali* (Buddhadeb Dasgupta), *Aajka Robin Hood* (Tapan Sinha), *Tabarana Kathe*, *Bannada Vesha* (Girish Kasara Valli), *Accident & Swamy* (Shaker Naag), *Daasi* (B.Narasinga Rao) and *Phaniyamma* (Prema Karanth).

The new wave masters of Kerala, Adoor and Aravindan, consolidated their position in the eighties with their films *Elippathayam*, *Mukha Mukham*, *Anantharam*, *Esthappan*, *Pokkuveyil*, *Chidambaram*, and *Oridath*. *Elippathayam* has won the prestigious British film Institute award for 1982. Shaji N. Karun's maiden film *Piravi* (1988) bagged several national and international awards and was shown in nearly forty film festivals. Meera Nair, the young woman director, won the Golden Camera award at Cannes for her first film *Salaam Bombay* in 1989. In 1990, Adoor Gopalakrishnan's *Mathilukal* won the FIPRESCI and UNICEF awards.

The late eighties and early nineties saw the revival of the musical love stories in Hindi cinema. *Mr. India*, *Tezaab*, *Qayamat se Qayamat*

Tak, *Maine Pyar Kiya*, *Chandni*, *Tridev*, *Hum*, *Ghayal*, *Saudagar*, *Rakhwala*, *Jo Jeeta Wohi Sikander*, *Hum Hain Rahi Pyarke*, *Baazigar*, *Aaina*, *Yeh Dillagi*, *Hum Aapke Hai Kaun*, *Krantiveer*, *Raja* and *Rangeela* were some of the popular Hindi films of the last decade.

The first half of nineties witnessed the release of some better films in Hindi as well as in other regional languages. *Drishti* and *Drohka* (Nihalani), *Lekin* (Gulzar), *Disha* (Sai Paranjpe), *Prahar* (Nana Patekar), *Parinda* (Vinod Chopra), *Diskha* (Arun Kaul), *Kasba* (Kumar Shahani), *Rudaali* (Kalpana Lajmi), *Maya Memsaab* (Ketan Mehta), *Mujhse Dosti Karoge* (Gopi Desai), *Sura*, *Kasatwan Khoda & Mammo* (Benegal), *Woh Chokri* (Subhanker Ghosh) & *EK Doctor Ki Maut* (Tapan Sinha) were some of the notable Hindi films. From Bengal, Orissa, Assam and Manipur came films like *Tahader Katha*, *Bagh Bahadur*, *Charachar* (Buddhadeb Dasgupta), *Uttora* (Sandip Ray), *Wheel Chair* (Tapan Sinha), *Unish April* (Rituparno Ghosh), *Adi Mimansa*, *Lalvany*, *Preethi* (A.K.Bir), *Nirbachana* (Biplab Roy Chowdhari), *Halodhia Choraya Baodhan Khat*, *Firingoti* (Jahnu Barua), *Haladhar* (Sanjeev Hazarika), and *Ishanou* (Aribam Shayan Sharma).

In the South Malayalam Cinema presented some notable films. They include *Vasthuha* (Aravindan), *Vidheyan* (Adoor), *Kireedoru*, *Bharatham* (Siby Malayil), *Amaram* (Bharatharaj), *Innale* (Padmarajan), *Oru Vadakkan Veeragatha*, *Sargam*, *Parinayam* (Hariharan), *Devasura* (I.V.Sasi), *Kilukkam*, *Thenmavin Kombath* (Priyadarsan), *Perumthachan* (Ajayan), *Daivathinte Vikruthikal* (Lenin Rajendran), *Kadavu* (M.T.), *Yamanam* (Gopi), *Abhaya* (Sivan), *Manichithrathazu* (Fazil), *Ponthanma* (T.V.Chandran) and *Swaham* (Shaji). From Tamil and Telugu cinema, there came few films like *Anjali*, *Roja* and *Bombay* (Mani Ratnam), *Marupakkam* and *Nammavar* (Sethumadhavan), *Karuthamma* (Bharathi Raja), *Surigadu* (Das Narayana Rao), *Mati Manushulu* (B.Narasimha Rao), *Swathi Kiranam* (K.Viswanath), *Mogha* (G.Rajasekharan) etc. English films like *My Beatty's Children* (Pamela Rooks), and *Engage* (Dev Benegal) were also produced during this period.

All in all, it has been a long story of nearly four decades, with the early shaky screen image turning into a multi pronged and multi win empire of its own, that has yielded about 27,000 feature films and thousands of documentaries and short films. Cinema has raised India's flag high in the world as the consistently largest film producer. But when it comes to quality the industry has to fly half mast.

■ Prof. Joseph Mathias Kottarathil

Union of India: basic data

Region	Capital	Area (sq km)	Population Final total '91	
INDIA	New Delhi	3,287,263@	846,302,688	
States	Capital	Area (sq km)	Population (1991)	Percentage to All India
1. Andhra Pradesh	Hyderabad	275,068	66,508,008	7.86
2. Arunachal Pradesh	Itanagar	83,743	864,558	0.10
3. Assam	Dispur	78,438	22,414,322	2.65
4. Bihar	Patna	173,877	86,374,465	10.21
5. Goa	Panaji	3,702	1,169,793	0.14
6. Gujarat	Gandhinagar	196,024	41,309,582	4.88
7. Haryana	Chandigarh	44,212	16,463,618	1.94
8. Himachal Pradesh	Shimla	55,673	5,170,877	0.61
9. Jammu & Kashmir**	Srinagar/Jammu*	222,236	7,718,700	0.91
10. Karnataka	Bangalore	191,791	44,977,201	5.31
11. Kerala	Thiruvananthapuram	38,863	29,698,518	3.44
12. Madhya Pradesh	Bhopal	443,446	66,181,170	7.82
13. Maharashtra	Bombay	307,690	78,937,187	9.33
14. Manipur	Imphal	22,327	1,837,119	0.22
15. Meghalaya	Shillong	22,429	1,774,778	0.21
16. Mizoram	Aizawl	21,081	689,756	0.80
17. Nagaland	Kohima	16,579	1,209,546	0.14
18. Orissa	Bhubaneswar	155,707	31,659,736	3.74
19. Punjab	Chandigarh	50,362	20,281,969	2.40
20. Rajasthan	Jaipur	342,239	44,005,990	5.20
21. Sikkim	Gangtok	7,096	406,457	0.05
22. Tamil Nadu	Madras	130,058	55,858,946	6.60
23. Tripura	Agartala	10,486	2,757,205	0.33
24. Uttar Pradesh	Lucknow	294,411	139,112,287	16.44
25. West Bengal	Calcutta	88,752	68,077,965	8.04
Union Territories	Headquarters			
1. Andaman & Nicobar Islands	Port Blair	8,249	280,661	0.03
2. Chandigarh	Chandigarh	114	642,015	0.08
3. Dadra & Nagar Haveli	Silvassa	491	138,477	0.02
4. Daman & Diu	Daman	112	101,586	0.01
5. Lakshadweep	Kavaratti	32	51,707	0.01
6. Pondicherry	Pondicherry	492	807,785	0.09
7. Delhi	Delhi	1,483	9,420,614	1.11

* Srinagar (Summer Capital), Jammu (Winter Capital).

Uttar Pradesh, Bihar and Madhya Pradesh account for 31.2 per cent or more than one-third of the total population of India.

@ The total area of the country represents provisional 'geographical area as on 31 st March 1982, supplied by the Survey of India. The area includes 78,114 sq km under illegal occupation of Pakistan. 5,180 sq km illegally handed over by Pakistan to China and 37,555 sq km under illegal occupation of China.

** The 1991 Census has not yet been conducted in Jammu & Kashmir. The figures are as per projections prepared by the Standing Committee of Experts on Population Projections, October, 1989.

States and Territories

The Union of India, made up of 25 States and 7 Union Territories, is in a state of demographic transition. Demographic transition indicates the passage of a population from high mortality and fertility rates to low mortality and low fertility.

The 1991 census final population count placed the Indian population at 846.3 million including the projected population of 7.72 m. of Jammu & Kashmir. The population has grown at an annual average rate of 0.83 per cent* between 1901 and 1951 and at a more rapid pace of 2.13 per cent in the post-independence period between 1951 and 1981 and at 2.35 percent between 1981 and 1991. If this rate continues until the year 2000, the Indian population would be 1025 million, about one-half more than what it is today.

There are many stages in the demographic transition beginning with a declining mortality and continuing fertility to a stage where both mortality and fertility rates decline more or less at the same rate and keep the population stable over a period of time.

The difference is essentially a difference of ratios between mortality and fertility rates in population group. The Indian nation is not a population group in this sense. Rather, it is made up of various population groups. These population groups tend to be so small that even a State may contain a large number of such groups.

Area-wise, Madhya Pradesh happens to be the *biggest state* of the Union (443,446 sq km) and Goa the *smallest* (3,702 sq km). This means the smallest state of the Union is only 0.8 per cent of the biggest one. Madhya Pradesh covers 13.48 percent area of the whole nation.

Here is the ranking according to area:

1. Madhya Pradesh	443,446 sq km
2. Rajasthan	342,239 sq km
3. Maharashtra	307,690 sq km
4. Uttar Pradesh	294,411 sq km
5. Andhra Pradesh	275,068 sq km
6. Jammu & Kashmir	222,236 sq km
7. Gujarat	196,024 sq km
8. Karnataka	191,791 sq km
9. Bihar	173,877 sq km
10. Orissa	155,707 sq km

* Percentage based on the Provisional figure of 684 months.

11. Tamil Nadu	130,058 sq km
12. West Bengal	88,752 sq km
13. Arunachal Pradesh	83,743 sq km
14. Assam	78,438 sq km
15. Himachal Pradesh	55,673 sq km
16. Punjab	50,362 sq km
17. Haryana	44,212 sq km
18. Kerala	38,863 sq km
19. Meghalaya	22,429 sq km
20. Manipur	22,327 sq km
21. Mizoram	21,081 sq km
22. Nagaland	16,579 sq km
23. Tripura	10,486 sq km
24. Sikkim	7,096 sq km
25. Goa	3,702 sq km

Union Territories

1. Andaman & Nicobar Islands	8,249 sq km
2. Delhi (National Capital Territory)	1,483 sq km
3. Pondicherry	492 sq km
4. Dadra & Nagar Haveli	491 sq km
5. Chandigarh	114 sq km
6. Daman & Diu	112 sq km
7. Lakshadweep	32 sq km

Population-wise, Uttar Pradesh is the *largest* State in India (139,112,287) and Sikkim, the *smallest* (406,457). UP's population is 16 per cent of India's total.

Here is the ranking according to population:

1. Uttar Pradesh	139,112,287
2. Bihar	86,374,461
3. Maharashtra	78,937,181
4. West Bengal	68,077,961
5. Andhra Pradesh	66,508,001
6. Madhya Pradesh	66,181,171
7. Tamil Nadu	55,858,941
8. Karnataka	44,977,201
9. Rajasthan	44,005,991
10. Gujarat	41,309,591
11. Orissa	31,659,791
12. Kerala	29,698,591
13. Assam	22,414,391
14. Punjab	20,281,991
15. Haryana	16,463,691
16. Jammu & Kashmir	7,718,791

7. Himachal Pradesh	5,170,877
8. Tripura	2,757,205
9. Manipur	1,837,119
10. Meghalaya	1,774,778
11. Nagaland	1,209,546
12. Goa	1,169,793
13. Arunachal Pradesh	864,558
14. Mizoram	689,756
15. Sikkim	406,457

Union Territories

1. Delhi (National Capital Territory)	9,420,614
2. Pondicherry	807,785
3. Chandigarh	642,015
4. Andaman & Nicobar Islands	280,661
5. Dadra & N. Haveli	138,477
6. Daman & Diu	101,586
7. Lakshadweep	51,707

Andhra Pradesh

Area: 275,068 sq km. **Capital:** Hyderabad; **Languages:** Telugu and Urdu; **Districts:** 23; **Population:** 66,304,854; **Males:** 33,623,738; **Females:** 32,681,116; **Increase (1981-'91):** 2,755,181; **Growth Rate (per cent) 1981-'91:** 23.82; **Density (persons per sq. km.):** 242; **Urban Population:** 26.89%; **Sex Ratio (Females per 1000 Males):** 972; **Literacy (per cent):** 45.11; **Males:** 56.24; **Females:** 33.71. **Per capita income (90-91):** Rs. 4507 (provisional). **1991 Census Final Population Total:** 66,508,008.

Physiography: Andhra Pradesh is the fifth largest state in India, both in area and population. Bounded by MP and Orissa in the north, the Bay of Bengal in the east, T. Nadu and Karnataka in the south and Maharashtra in the west, AP forms the major link between the north and the south of India. The northern area of AP is mountainous with an annual rainfall of 110 to 125 cm. The highest peak *Mahendragiri* rises 1500 m (4920 ft.) above the sea level. As we go further south, the rainfall comes down to 50 cm (20 inches) annually. The climate is generally hot and humid. AP is principally fed by the south west monsoon. The north east monsoon contributes about one-third of the rainfall.

The *Krishna* and the *Godavari* are the major river systems in the state. The Godavari is the largest and the broadest river of South India. The Tungabhadra is an important tributary of the Krishna. Other important rivers are the Pennar, Vamsadhara and the Nagavali. All these rivers are rainfed, and are of great economic

significance because of their rich hydropower and irrigation potential.

History: The word Andhra is equally applicable to the land, the people and the language, although the language in course of time developed a name of its own - *Telugu*.

The Andhras, originally an Aryan race, migrated to the south of the Vindhya where they mixed with the non-Aryan stocks. Andhra Pradesh first enters history as part of the great Mauryan empire.

In the 13th century, the Kakatiyas, with their capital of Warrangal, dominated Andhra Desa. In 1323, the Tughlak Sultan of Delhi captured the Kakatiya ruler and ended the dynasty. The Tughlaks never cared to annex the Kakatiyan dominions and four local kingdoms arose out of the old Kakatiyan empire.

One of these kingdoms was Vijayanagar. The Vijayanagar empire stood as a bulwark against Muslim expansionism for more than 200 years. Vijayanagar had to contend with Muslim sultanates in the north time and again. Sometimes Vijayanagar joined one sultan against another. These tactics finally led to a grand alliance of the sultanates of Ahmadnagar, Bijapur, Golconda and Bihar against Vijayanagar. On 23rd January, 1565 the Deccan sultans humbled the mighty Vijayanagar army at the battle of Talikota.

The Qutb Shahis of Golconda laid the foundations of the modern city of Hyderabad. Emperor Aurangzeb routed the Qutb Shahis and appointed Asaf Jah the governor of Deccan. As the Mughal Empire tottered under Aurangzeb's successors, the Asaf Jahis made themselves independent rulers under the title of Nizam. The Nizams became involved in the Anglo-French wars in the Deccan and had finally to enter into a subsidiary alliance with the British in 1800.

Andhra Pradesh is the first state in India that has been formed on a purely linguistic basis. When India became independent, the Andhras, that is, the Telugu-speaking people, were distributed in about 21 districts, 9 of them in the Nizam's Dominions and 12 in the Madras Presidency. On the basis of an agitation, on Oct. 1, 1953, 11 districts of the Madras State were put together to form a new Andhra State with Kurnool as capital.

On Nov. 1, 1956 in accordance with the recommendations of the State Reorganization Commission, the Andhra State was enlarged by the addition of nine districts formerly in the Nizam's Dominion. Hyderabad, the former capital of the Nizam, was made the capital of the enlarged Andhra State.

AP thus consists of three distinct regions: (1) coastal region, made up of nine districts, generally called Andhra, (2) the interior region,

consisting of four districts collectively known as Rayalaseema and (3) Telengana region, consisting of the capital Hyderabad and nine adjoining districts.

From 1969 to 1972 AP was rocked by riots, first in Telengana, then in Andhra on the question of bifurcation of the state. The Central Government refused to consider the question of bifurcation. A six-point formula was put forward by the Prime Minister Mrs. Indira Gandhi as a compromise. The formula was generally accepted and peace was restored in the state. The six-point formula has been incorporated into

the Constitution as the Thirty-second Amendment 1973.

Administration: The legislature in the A.P. is unicameral, the Legislative Assembly has 295 seats. A.P. Legislative Council was abolished in 1985.

State of Economy: A.P. has a widely diversified farming base with a rich variety of cash crops. It is surplus in foodgrains and can rightly claim to be the granary of the south. Agricultural sector accounts for around 50% of the State's income and provides livelihood for 70% of the population. The crops extensively culti-

Andhra Pradesh



Districts

District	Area (sq km)	Popula- tion (1991)	Head- quarters
Rayalaseema Region			
Anantapur	19130	3,183,781	Anantapur
Chittoor	15152	3,249,565	Chittoor
Cuddapah	15359	2,259,154	Cuddapah
Kurnool	17658	2,973,709	Kurnool
Andhra Region			
E. Godavari	10807	4,541,306	Kakinada
Guntur	11391	4,085,904	Guntur
Krishna	8734	3,693,179	
Machilipatnam			
Nellore	13076	2,390,485	Nellore
Prakasam	17626	2,750,340	Ongole
Srikakulam	5837	2,314,442	Srikakulam
Visakhapatnam	11161	3,272,110	V. Patnam
Vijayanagaram	6539	2,101,394	
Vijayanagaram			
W. Godavari	7742	3,513,979	Eluru
Telengana Region			
Adilabad	16128	2,080,231	Adilabad
Hyderabad	217	3,091,718	Hyderabad
Ranga Reddy	7493	2,528,208	Hyderabad
Karimnagar	11823	3,043,228	Karimnagar
Khammam	16029	2,200,081	Khammam
Mahaboobnagar	184323	071,765	Mahaboobnagar
Medak	9699	2,264,124	Sangareddy
Nalgonda	14240	2,850,183	Nalgonda
Nizamabad	7956	2,034,794	Nizamabad
Warrangal	12846	2,811,174	Warrangal
Total		66,304,854	

vated in the state are paddy, jawar, bazra, ragi, maize, groundnut, chillies, tobacco, cotton, castor and sugarcane. A.P. leads all other states in the production of tobacco with a virtual monopoly of virginia tobacco.

There are 828 medium and large scale industries with a capital investment of Rs. 11,763 crore providing employment for more than 4.96 lakh persons. There are 98,868 small scale units with investment of Rs. 1,245 crore providing employment to 8.6 lakh persons.

The Visakhapatnam Steel Plant started operation in 1990.

With a 970-km coastline, AP is the largest maritime State in India. The port of Visakhapatnam caters to M P and Orissa too.

No. of films produced in 1991: 174.

Universities: Andhra University, Waltair; Agricultural University, Hyderabad; Open University, Hyderabad; University of Hyderabad, Hyderabad; Jawaharlal Nehru Technological University, Hyderabad; Osmania University,

Hyderabad; Nagarjuna University, Guntur; Srikrishna Devaraya University, Anantapur; Sri Padmavathi Mahila Vishwa Vidyalayam, Tirupathi; Sri Venkateshwara University, Tirupathi; Telugu University, Hyderabad; University of Health Science, Vijayawada and Kakatiya University, Warangal. Central Institute of English and Foreign Languages (CIEFL), Hyderabad, Rashtriya Sanskrit Vidyapeetha, Tirupati, and Nizam's Institute of Medical Sciences, Hyderabad are deemed universities. A full fledged Maulana Abul Kalam Azad National Urdu University is to start functioning shortly.

Tourist Centres: Andhra Pradesh is rich in historical monuments. It possesses many holy temples which attract large numbers of pilgrims and tourists.

Tirupati in Chittoor district houses one of the most famous temples in India. The presiding deity is known as Venkateswara. The main temple is situated on a hill-top, Tirumalai, and is a masterpiece of South Indian architecture.

The temple of Sriramachandra at Bhadrachalam, the Mallikarjunaswami temple at Srisailem, the Ahobalam temple, Srikummam temple and the Simhachalam temple are among the other famous temples of Andhra Pradesh. The main tourist attraction is the capital of the state, Hyderabad. The capital is in reality the twin cities of Hyderabad and Secunderabad linked together by the Hussain Sagar. Places of interest are the Char Minar built in 1591, Osmania University, State Museum and Art Gallery, Salarjung Museum, Health Museum, Nehru Zoological Park, Public Gardens, Birla Mandir and Macca Masjid.

Another important centre of tourism is Golconda, about 8 km from Hyderabad. The capital of the Qutb Shahi Sultans in the 16th century, Golconda is rich in historical monuments which include the famous Golconda Fort. Golconda was known the world over, as a rich mine of diamonds in the mediaeval times. The famous diamonds, *Kohinoor* and *Pitt*, came from the diamond mines of Golconda.

Nagarjuna Sagar dam and the vicinity attracts large number of tourists. Yadagiri Gutta at Nalgonda, Vemulawada at Karimnagar and Ramappa and Thousand Pillars temple at Warrangal are also centres of attraction. Nagarjuna Srisailem Sanctuary is the largest tiger reserve in India.

Kuchipudi is the classical dance of A.P.

Governor: Krishan Kant; **Chief Minister:** N Chandrababu Naidu (Telugu Desam).

Arunachal Pradesh

Area: 83,743 sq km. **Capital:** Itanagar. **Languages:** Monpa, Aka, Miji, Sherdukpen, Nishi, Apatani, Hill Miri, Tagin, Adi, Idu, Digaru, Miji,

Khampti, Singpho, Tangsa, Nocte, Wancho. Districts: 11; Population: 858,392; Males: 461,242; Females: 397,150; Increase (1981-'91): 226,553; Growth Rate (per cent) 1981-'91: 35.86; Density (persons per sq km.): 10; Urban Population: 12.80%; Sex Ratio (Females per 1000 Males): 861; Literacy (per cent): 41.22; Males: 51.10; Females: 29.37; Per capita income (89-90): Rs. 4176. 1991 Census final Population total: 864,558.

Arunachal Pradesh (Land of the Dawn-lit Mountains) is a thinly populated hilly tract on the eastern most part of India, surrounded on three sides by the international border with Bhutan to the west, China to the north and Burma to the east and Assam to the south.

Physiography: Arunachal is entirely mountainous except for thin strips of flat land most of which adjoin Assam. Dense forests cover more than two-thirds of the territory. The hydel potential is very high.

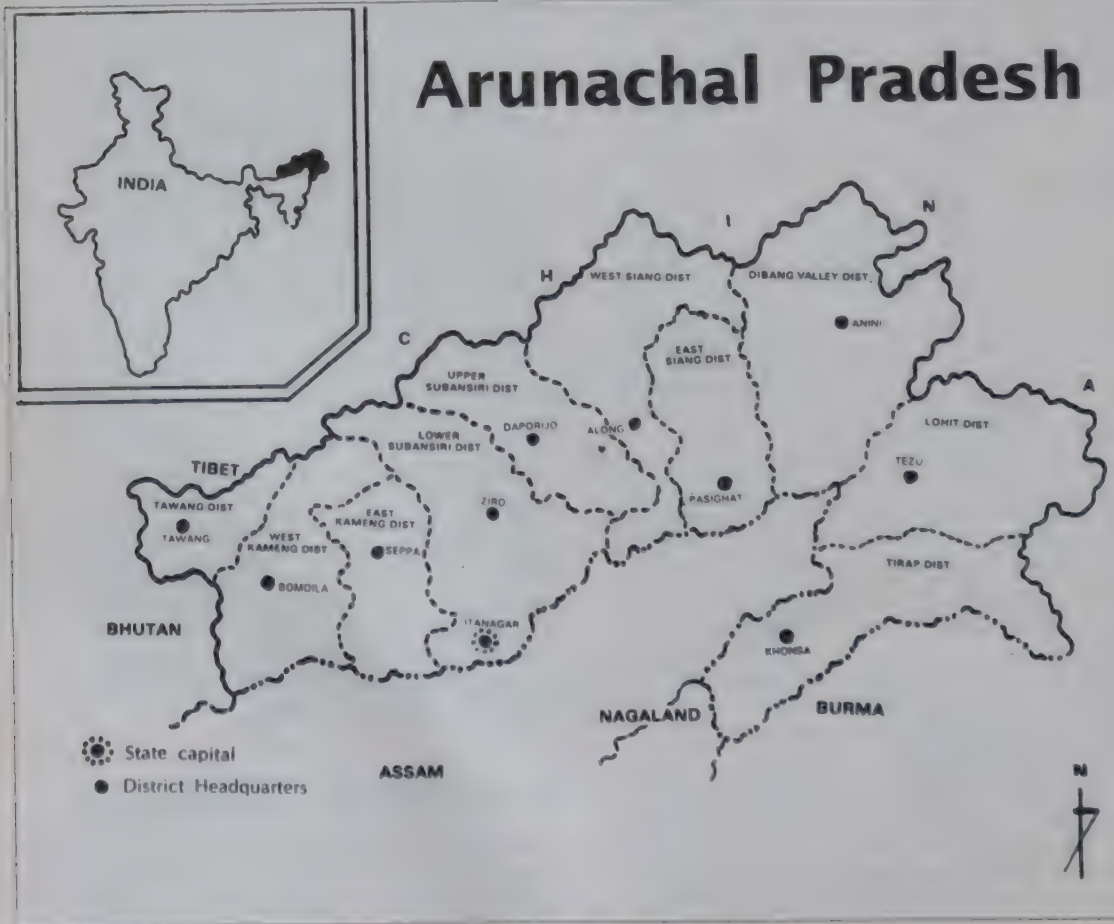
The population of Arunachal is predominantly tribal. All the tribes belong to Scheduled Tribes. According to the 1981 census, Scheduled Tribes

Districts

District	Population (1991)(sq km) census)	Area (sq km)	Head-quarters
West Kameng	56,402	9,594	Bomdila
East Kameng	50,238	4,134	Seppa
Lower Subansiri	54,591	13,010	Ziro
Upper Subansiri	49,163	7,032	Daporijo
West Siang	89,778	12,006	Along
East Siang	99,985	6,512	Pasighat
Dibang Valley	42,928	13,029	Anini
Lohit	109,632	11,402	Tezu
Tirap	85,210	7,024	Khonsa
Tawang	27,574	NA	Tawang
Changlang	92,891	NA	Changlang
Total	858,392	83,743	

formed 79 per cent of the population as against an average of 7 per cent for the whole of India. There are about 20 major tribes which are divided into a number of sub-tribes. The princi-

Arunachal Pradesh



The orchid paradise

Arunachal is losing its rich flora reserves. Indiscriminate cultivation, particularly the jhum cultivation practised by tribal farmers, and destruction of habitats are causing the damage.

The state of Arunachal Pradesh is climatically ideal for the growth of some of the rarest orchids of the world and is referred to as the "orchid paradise" of India. Over 500 species of orchids are found in the state.

The Tipi Orchid Centre was set up in 1972 with the objective of collection, cultivation and commercialisation. Later the objective was revised to promote development of orchid trade through conservation and research.

The Centre at Tipi on the Tozpur-Hombila road in Arunachal Pradesh's West Kameng district, has an idyllic location on the bank of the river Kameng, which is known in the neighbouring Assam as the Bharoli. It is surrounded by ever green mountains of the eastern Himalayas with tropical rain forest elements.

A peculiar phenomenon at Tipi is the high velocity wind in the night from December to March every year making it ideal for the growth and preservation of the orchids.

The process of development of felling of

threes rendered many species rare and endangered in the wild. The jhumming agriculture practice further endangered the entire group of orchid plants. A survey found that 175 species of orchids were endangered. Attempts were made to introduce such orchids in the orchidaria at Tipi Sessa, Dirrang, Roing and Itanagar depending on their habitat requirements.

A large number of orchids were going waste in the plantation coupes. A programme of collection of orchids was launched and it helped rescue over one lakh orchids from various parts of the State.

Under the "orchid cultivation and multiplication" sponsored by the Northern-Eastern Council (NEC) about 115 species were cultivated and multiplied in Dirrang sub-centres.

The Orchid Centre was subsequently registered for export of orchids and cut flowers of very high quality and accepted by several leading markets in the world.

The Tipi Orchid Centre has been able to propagate and disseminate knowledge of orchids and create an awareness of orchid conservation, cultivation and development of orchid industry.

pal tribes are: Adi, Nishi, Apatani, Tagin, Mishmi, Khampti, Nocte, Wancho, Tangsha, Singpho, Monpa, Sherdukpen and Aka. These tribes speak their own tongues. These tribal people are colourful and hospitable and fond of music and dance.

History: Ancient *Puranas* have references to this region. Recorded history of Arunachal Pradesh can be traced only when Ahom Kings began to rule Assam in the 16th century. The British took possession of Assam in 1838. British govt. had brought Arunachal Pradesh also under their administrative control. Originally known as the North East Frontier Agency (NEFA), it was placed under the administration of the Union Government in 1948. It was declared a Union Territory under the name of Arunachal Pradesh on January 20, 1972. It became a full-fledged state on February 20, 1987.

Administration: On 15th August 1975, the Pradesh Council of Arunachal Pradesh was converted into a Legislative Assembly.

The state is divided into 11 districts, each under a Deputy-Commissioner.

State of Economy: Nearly 80 per cent of the population of Arunachal Pradesh is engaged in

agriculture. The traditional method of agriculture is jhumming, a kind of shifting cultivation. The forests are cleared and crops are raised for one to three years, depending on the fertility of the soil. Thereafter the cultivators move on elsewhere. A determined effort is being made to wean the people from jhumming. The main crops are rice, maize, millet, wheat and mustard.

About 61,000 sq km of the state is covered by forest, which has become an important source of revenue for the state.

The state has a bright prospect of forest-based industries. A remarkable number of medium and small scale industries including saw mills, plywood and veneer mills, rice mills, fruit preservation units, oil expellers, besides handloom and handicraft industries have been established. The state has 330 km. of national highway.

Universities: Arunachal University, Itanagar.

Tourist Centres: In a major policy change in 1992, the Union Home Ministry agreed to allow foreign tourists to visit Arunachal to trek, raft and fish on select nature trails. Itanagar, Ziro-Daporiji Pasighat and Margherita Mian-Nampdapha are two circuits cleared. A new

tourism ministry also has been formed. India's largest Buddhist monastery is at Tawang.

Governor: Mata Prasad; **Chief Minister:** Gegong Apang (Congress-I).

Assam

Area: 78,438 sq km. **Capital:** Dispur. **Language:** Assamese, (Bengali for Barak Valley). **Districts:** 23; **Population:** 22,294,562; **Males:** 11,579,693; **Females:** 10,714,869; **Increase (1981-'91):** 52.44; **Growth Rate (percent) 1971-'91*:** 52.44; **Density (persons per sq km.):** 284; **Sex Ratio (Females per 1000 Males):** 925; **Literacy:** 53.42; **Males:** 62.34; **Females:** 43.70. **Per capita income (89-90):** Rs. 3179. 1991 Census final Population total: 22,414,322.

Scholars are not agreed on the origin of the name Assam. Some say that Assam is called so,

because of its unequal terrain that is, hills interspersed with valleys. They rely on a similar-sounding Sanskrit word, meaning 'unequalled'. This explanation appears to be far-fetched. A more acceptable version is that Assam is only the anglicised version of Asom which was the name the Ahoms gave to the country, when they conquered it.

Physiography: Geographically Assam is a shadow of its former self. It has been reduced to one-third of its original size in thirty years time.

In the partition of India (1947) Assam lost Sylhet district, except a major portion of Karimganj sub-division, to East Pakistan, now Bangladesh. Out of the 27 lakh population of Sylhet, Assam retained only 7 lakh, the rest going to Pakistan. Thereafter, Assam continued to lose territory and population step by step as Nagaland, Meghalaya, Mizoram and Arunachal Pradesh were separated from it.

Assam, as it is today, may be divided into two important physical regions the Barak valley and the Brahmaputra valley.

Assam is dominated by the Brahmaputra

* There was no census enumeration in Assam in 1981 due to disturbed conditions. Hence the growth rate is for two decades: 1971-1991.



ver. The total length of the river from the source to the sea is 2900 km. Its drainage area is roughly 935,500 sq km.

Rainfall in Assam is one of the highest in the world. It varies between 178 and 305 cm. All this rainfall is concentrated in 4 months, June to September. The concentration of rainfall affects the state in two diametrically opposite ways, namely floods and droughts.

History: An ideal meeting ground for diverse races, Assam gave shelter to streams of human waves carrying with them distinct cultures and trends of civilization. Austro-Asiatics, Negritos, Dravidians, Alpines, Indo-Mongoloids, Tibeto-Burmese and Aryans penetrated into Assam through different routes and contributed in their own way towards the unique fusion of a new community which came to be known in later history as the Assamese. Assam, however, remained predominantly a land of the Tibeto-Burmese. The vast section of the people of Assam belong either to this stock or owe their origin to the fusion of this stock with other racial groups.

Assam, known in ancient lore as Kamarupa, originally included in addition to modern Assam, parts of modern Bengal and Bangladesh. Guwahati, the pulsating centre of Assam, is an ancient town whose history goes back to the puranic days. The city, anciently known as Pragjyotishpur, was said to have been founded by King Narakasur, who is mentioned in the Puranas and epics. His son Bhagadatta led a large elephant force to the battlefield of Kurukshetra, and fell fighting on the side of the Kauravas.

In the 13th century, the country was conquered by the Ahoms under the leadership of Sukapha, a prince of the Shan tribe, in the upper Irrawaddy Valley.

The advent of the Ahoms changed the course of Assam's history. Ahoms fought the local Kachari, Chutia and Moran kings and established their sway in course of time, over the whole of Brahmaputra Valley.

The Ahoms appointed Bharphakans (Viceroys) to rule Kamarupa and Gauhati became the capital of these Viceroys. The last of the Viceroys was Badanchandra, who in an ill-advised bid for power invited the Burmese to help him. The Burmese dislodged the Ahoms and dismissed their Viceroy, Badanchandra. The Ahoms appealed to the British for help.

The British defeated the Burmese in several battles, in what has since been called the First Burmese War. With the Treaty of Yandabo in 1826, the Burmese vacated Assam, leaving the British in possession. The conquered territory was placed under the administration of an Agent to the Governor General. In 1832 Cachar

was annexed to Assam. In 1835, the Jaintia Hills were made part of Assam. (Upper Assam was annexed to Bengal in 1839). In 1874 a separate province of Assam under a Chief Commissioner was created, with Shillong as capital.

On the partition of Bengal in 1905, Assam was united to the eastern districts of Bengal under a Lt. Governor. From 1912 the Chief Commissionership of Assam was revived, and in 1921 a Governorship was created.

On the partition of India almost the whole of the predominantly Muslim district of Sylhet was merged with East Bengal (present Bangladesh). Dewanagiri in North Kamarupa was ceded to Bhutan in 1951.

Assam lost a good deal of its former territory, as a result of political changes, from time to time.

In 1948, the North East Frontier Agency was separated from Assam, for security reasons. In 1963, Nagaland was carved out of Assam as a full-fledged state. On 21st Jan. 1972, Meghalaya was cut out of Assam, as a separate state and Mizoram became a Union Territory. In 1987, Mizoram was granted statehood.

Administration: The Legislature consists of only one house the Legislative Assembly. (126 members)

Districts

Districts	Area in sq km	Population (1991)	Head-quarters
Barpeta	3,307.3	1,382,715	Barpeta
Bongaigaon	2,159.0	806,472	Bongaigaon
Cachar	5,102.2	1,215,952	Silchar
Darrang	3,465.3	1,286,633	Mangaldoi
Dhemaji	2,637.3	472,183	Dhemaji
Dhubri	2,745.5	1,325,653	Dhubri
Dibrugarh	7,023.9	1,038,090	Dibrugarh
Goalpara	2,843.8	661,801	Goalpara
Golaghat	3,541.0	801,740	Golaghat
Hailakandi	1,326.1	448,506	Hailakandi
Jorhat	6,400.0	868,445	Jorhat
Kamrup	6,601.4	1,987,662	Guwahati
Karbi Anglong	10,332.0	655,415	Diphu
Karimganj	1,839.0	825,551	Karimganj
Kokrajhar	4,716.5	796,880	Kokrajhar
Lakhimpur	5,646.4	749,675	Lakhimpur
Marigaon	1,559.2	640,376	Marigaon
Nagaon	5,561.0	1,892,087	Nagaon
North Cachar Hills	4,890.0	149,346	Haflong
Nalbari	2,022.8	1,012,608	Nalbari
Sibsagar	2,602.9	895,112	Sibsagar
Sonitpur	5,225.2	1,418,484	Tezpur
Tinsukia	3,476.0	963,176	Tinsukia

The state is divided into 23 districts.

The Bodos

If a Bodo man looking for a bride finds the girl combing her hair or sweeping the courtyard, it is considered a good omen, and the girl, it is believed, will make a good wife. If the prospective bride is seen drying or husking paddy, again it is an auspicious omen.

But if it rains with thunder on the way to a girl's house, don't proceed, for there can be trouble. A mongoose or a snake seen crossing the road too is bad omen.

These are among the superstitious beliefs of Bodos, the people who are believed to have introduced the art of rearing silk worms and spinning and wearing of silk clothes in India. There is a theory that the Bodos were the first to cultivate rice in the country.

The Bodos are believed to have invaded north eastern India around the time of the Aryan arrival in the north. They settled in Assam and North East Bengal. However, Bodos are *Sonowal* and *Thengal Kachari* in upper Assam and *Boro Kachari* in western Assam.

The Bodos constitute 45.4 per cent of the State's tribal population. Their number is estimated at eight lakhs by the 1991 census. Literacy rate is low: 19.75 per cent among men, and 11.06 per cent among women.

The patriarchal system is dominant among the Bodos, and the father shoulders all the responsibilities. On his death, the eldest son runs the house in consultation with his mother.

The Bodos are known for the respect they pay to their parents and elders. They never sit on a four legged stool as they feel that it amounts to their sitting on the heads of their parents.

The superstitions are not as strong in towns as in villages. Bodos, in general, are highly religious.

The Bodo language was first written in Roman script in 1884. In 1963 the Assamese-Bengali script was adopted. Bodo then became a medium of instruction in primary schools. In April, 1994, the Roman script was again introduced instead of Assamese-Bengali.

tations in the state. Assam contributes 15.6% of world's tea production and 55% of the country's tea output. Assam is first state in the country where oil was struck in 1889 at Digboi. Petroleum and petroleum products amount to a large share of the country's total output of petroleum and natural gas. The state has two oil refineries and the third with Petrochemical Complex is under way. There is also a public sector fertilizer factory at Namrup. Construction work has started at Numaligarh for the setting up of the 3m. tonnes capacity Nuraligarh Refinery at a cost of Rs. 2350 crore. Other industries are sugar, jute, silk, paper, plywood, rice and oil drilling. Important cottage industries are handloom, sericulture, manufacture of cane and bamboo articles, carpentry, smithy and manufacture of brass utensils. An export oriented handloom project has been started at Suakuchi to exploit the export potentialities of Eri and Muga. Number of registered factories in 1989 was 2567.

There are six civil airports, at Borjhar, Salorbari, Mohanbari, Lilabari, Kumbhigran and Rowrah.

Universities: Assam Agri University, Jorhat; Dibrugarh University, Dibrugarh; Guwahati University, Guwahati. The two Central Universities at Silchar and Tezpur and IIT have started functioning in rented buildings.

No. of Schools in the state: 37,652. There are 3 medical colleges and 3 engineering colleges.

Tourist Centres: Guwahati-Kaziranga, Sibsagar and Guwahati-Manas are two tourist circuits promoted by the Union Government. The following additional circuits have been proposed by the state.

1. Guwahati-Bhairabkunda-Orang-Bhalulung-Tezpur, 2. Guwahati-Diphu-Haflong-Silchar.

These circuits can be linked with Arunachal Pradesh, Meghalaya, Manipur and Mizoram.

Kaziranga National Park is world famous for rhinos and elephants. Manas is another national park.

Foreigners visiting the state have to obtain restricted area permits from the Union Home Ministry.

Governor: Loknath Mishra. **Chief Minister:** Hiteswar Saikia (Cong-I).

Bihar

Area: 173,877 sq km; **Capital:** Patna; **Language:** Hindi; **Districts:** 55; **Population:** 86,338,853; **Males:** 45,147,280; **Female:** 41,191,573; **Increase (1981-'91):** 16,424,111; **Growth Rate (per cent) 1981-'91:** 23.4; **Density (persons per sq km.):** 497; **Urban Population:** 13.14%; **Sex Ratio (Females per**

State of Economy: Assam is rich in mineral wealth. It holds a unique position in the production of mineral oil. Other minerals found in the state are coal, limestone, refractory clay, dolomite and natural gas.

Production of food grains during 1994-95 was estimated at 39.71 lakh tonnes. Of the agriculture-based industries, tea occupies an important place. There are nearly 750 tea plan-

000 Males): 912; Literacy: 38.54; Males: 2,63; Females: 23.10. per capita income 89-90): Rs. 2122. 1991 Census final population total: 86,374,465.

The name Bihar is a corrupt form of Vihara which means a Buddhist monastery. Bihar, squeezed in between West Bengal, Orissa, MP and UP, reaches up to the Himalayas in the north and is completely landlocked. Bihar is bounded on the north by Nepal, on the south by Orissa, on the east by W. Bengal and on the west by MP and UP.

Physiography: Stretching from the Himalayan foothills in the north to Orissa in the south, Bihar suffers all the vicissitudes of changing seasons. It gets the worst of the cold and the worst of the heat and plenty of floods in the bargain.

The most striking geographical feature of Bihar is the sharp division between north and south. The northern portion is almost entirely a level tract, while the southern region is wooded and hilly. North Bihar is an extremely fertile



strip of land, the land being watered by the rivers Sarayu, Gandak and Ganga.

Southern Bihar, especially in and around the districts of Chota Nagpur and Santhal Parganas, is thickly wooded and consists of a succession of hills. The elevation varies from 300 to 1300 m, the highest peak being 1372 m high.

History: Bihar has a very ancient, glorious and colourful history. Bihar was the home state of the Mauryan emperors. Under Asoka the Great, Magadha and its capital Pataliputra became famous all over the world. With the death of Asoka, its fortunes declined. However, under the Gupta emperors it regained its lost glories. Under the Sultans of Delhi, and later under the Mogul emperors, Bihar was reduced to the status of a province. Its only claim was that it lay on the route from Bengal to Delhi.

When Sher Shah, a Behari himself, drove out Humayun and occupied the throne of Delhi, Bihar once again shot into limelight. Sher Shah founded the city of Patna, on the site of the ancient capital Pataliputra and gave the country an efficient administration. Bihar enjoyed a period of peace and stability under Akbar the Great and later Moguls.

With the decline of the Mogul empire, Bihar passed into the hands of Nawabs of Bengal. The British wrested the country from the Nawab of Bengal, by the decisive battle at Buxar in Bihar (1764). Under the British Bihar was first a part of the Bengal Presidency. In 1911, Bihar along with Orissa, was separated from the Presidency of Bengal. In 1936, Bihar and Orissa became separate provinces.

Administration: Bihar is one of the medium-sized states of India being the 9th in area. But in population it is the 2nd biggest state, next only to UP.

The Legislative consists of two houses the Legislative Assembly and the Legislative Council.

For the development of the tribal region, Bihar government signed an agreement with the Centre on Sept. 26, 1994, to set up a "General Council" for 18 districts of the state falling in the Jharkhand region.

Districts

District	Area in sq km	Population (1991)	Head quarters
Patna	3,202.0	3,623,225	Patna
Nalanda	2,367.0	2,003,313	Biharsharif
Nawada	2,494.0	1,358,433	Nawada
Gaya	6,545.0	2,665,217	Gaya
Aurangabad	3,305.0	1,537,946	Aurangabad
Rohtas	3,851.5	2,088,455	Sasaram
Bhojpur	2,464.4	1,950,432	Arrah

Saran	2,641.0	2,562,930	Chapra
Siwan	2,219.0	2,159,346	Siwan
Gopalganj	2,033.0	1,701,365	Gopalganj
Paschimi			
Champaran	5,228.0	2,330,610	Bettiah
Purbi			
Champaran	3,968.0	3,042,303	Motihari
Sitamarhi	2,643.0	2,388,822	Sitamarhi
Muzaffarpur	3,172.0	2,946,601	Muzaffarpur
Vaishali	2,036.0	2,144,252	Hajipur
Begusarai	1,918.0	1,813,214	Begusarai
Samastipur	2,904.0	2,715,297	Samastipur
Darbhanga	2,279.0	2,509,083	Darbhanga
Madhubani	3,501.0	2,828,640	Madhubani
Saharsa	2,814.4	1,895,946	Saharsa
Madhepura	1,788.5	1,178,060	Madhepura
Purnia	7,943.0	1,876,287	Purnia
Katihar	3,057.0	1,821,590	Katihar
Munger	3,402.2	2,192,546	Munger
Khagaria	1,485.8	986,731	Khagaria
Bhagalpur	2,568.8	2,159,797	Bhagalpur
Deoghar	2,478.6	918,323	Deoghar
Godda	2,110.4	858,678	Godda
Sahebganj	3,405.4	1,297,391	Sahebganj
Dhanbad	2,996.0	2,709,170	Dhanbad
Giridih	6,892.0	2,224,006	Giridih
Hazaribagh	7,458.8	2,376,174	Hazaribagh
Palamu	8,704.9	1,844,289	Daltonganj
Ranchi	7,574.1	2,205,034	Ranchi
Gumla	9,077.1	1,153,557	Gumla
Lohardaga	1,490.9	288,585	Lohardaga
Jahanabad	1,569.30	1,173,071	Jhanabad
Dumka	5518.2	1,497,266	Dumka
Purbi			
Singhbhum	3533.3	1,617,170	Jamshedpur
Pashchimi			
Singhbhum	8012.0	1,789,796	Chaipasa
Araria	2794.9	1,611,145	Araria
Kishanganj	1938.5	986,672	Kishanganj
Banka	3020.2	10,38,674	Banka
Jamui	2996.5	8,62,589	Jamui
Supaul	1257.4	6,18,805	Supaul
Bhabhua	3361.5	7,91,710	Bhabhua
Buxar	1633.6	9,16,886	Buxar
Garhwa	4044.1	6,06,759	Garhwa
Bokaro	3342.6	14,47,870	Bokaro
Chatra	3706.2	4,62,672	Chatra

New districts:

Lakhisarai	NA	NA	Lakhisarai
Pakur	NA	NA	Pakur
Kodarma	NA	NA	Kodarma
Shekhpura	NA	NA	Shekhpura
Sheohar	NA	NA	Sheohar

State of Economy: Bihar is ideally suited for agriculture. It has 115 lakh hectares cultivated land out of a total of 174 lakh ha. Presently only 85 lakh hectares of land are being cultivated. The principal foodgrain crops are rice, wheat

maize and pulses. Main cash crops are sugarcane, oilseeds, tobacco, jute and potato. Forest covers about 19 per cent of the total area. Important forest products are timber, kendu leaves, lac, gum and sal seed. Bihar Forest Development Corporation collects seeds like mahua, Karanj and Kusum. Bihar has a number of rivers; the most important is Ganga.

In minerals Bihar is the richest state in India, accounting for nearly 40% of India's total production. It is the sole producer of coking coal, pyrites and uranium and the leading producer of coal and mica. Industries based on iron ore, coal, etc., are spread out around Jamshedpur, Bokaro, etc.

Universities: Bhagalpur University, Bhagalpur; Bihar University, Muzaffarpur; Birla Institute of Tech., Mesra; Birsa Agri University, Ranchi; Kameshwarsingh Sanskrit University, Darbhanga; Lalit Narain Mithila University, Darbhanga; Magadh University, Bodhgaya; Nalanda Open University, Nalanda; Patna University, Patna; Rajeendra Agri University, Pusa, Patna; Ranchi University, Ranchi.

Tourist Centres: Rajgir, Bodh Gaya, Jamshedpur, Bokaro, Nalanda, Patna, Ranchi, Sasaram, Vaishali, Hazaribagh, Betla, Shimbandh, etc. Bodh Gaya, near Gaya in Bihar, is a Buddhist centre of pilgrimage. It contains the famous ancient temple near the Bodhi Tree under which Buddha got enlightenment. There are airports at Patna, Ranchi, Jamshedpur and Gaya.

Jamshedpur and Bokaro are steel towns. Nalanda was one of the great seats of learning in ancient India and contains the ruins of many Buddhist temples and monasteries. Patna, the capital, stands on the site of the ancient city of Pataliputra. Sasaram is famous on account of the magnificent tomb of Sher Shah Suri, Emperor of Delhi. Hazaribagh and Betla have national parks and wild life sanctuaries. Vaishali was the seat of ancient Lichavi Republic.

Governor: A.R.Kidwai; **Chief Minister:** Lalu Prasad Yadav (Janata Dal).

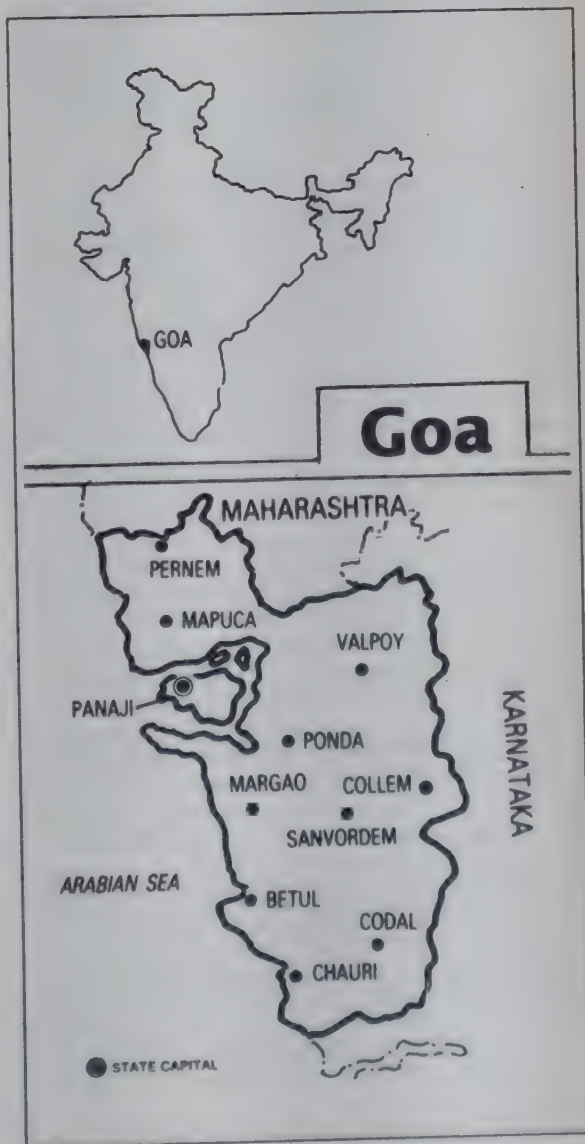
Goa

Area: 3702 sq.km.; **Capital:** Panaji; **Languages:** Konkani and Marathi; **Districts:** 2; **Population:** 1,168,622; **Males:** 593,563; **Females:** 575,059; **Increase (1981-91):** 160,873; **Growth Rate (per cent) 1981-91:** 15.96; **Density (persons per sq. km.):** 316; **Urban Population:** 41%; **Sex Ratio (females per 1,000 males):** 969; **Literacy:** 76.96; **Males:** 85.48; **Females:** 68.20; **Per capita income (89-90):** Rs. 6939. **1991 census final population total:** 1,169,793.

Goa is the smallest state of the Indian Union.

It was part of the Union Territory of Goa, Daman, and Diu. It became the twentyfifth state in the Indian Union on May 30th 1987 while Daman and Diu remained a Union Territory, administered by the Governor of Goa who simultaneously held office as the Lt. Governor of Daman and Diu also. Since their liberation on December 19, 1961 from the Portuguese colonial rule, the three land blocks on the west coast of India, were under one administration until 1992. In 1992, a separate administrator was appointed for Daman & Diu.

Physiography: Situated between Karnataka and Maharashtra, Goa is bounded on the north by the Terekhol river, surrounded on the south and east by Karnataka while on the west is the Arabian Sea.



On its eastern sector Goa's terrain is hilly, forming the northern edge of the Sahyadri mountain ranges. The major west-flowing rivers that crease the territory are: Mandovi, Zuari, Terekhol, Chapora and Betul. The total navigable length of these rivers, which form the waterways by which Goa's main export commodity iron and manganese ore is transported to the Marmagao harbour, is 253 km. The Marmagao harbour is virtually the confluence of the Mandovi and Zuari rivers.

Goa's climate is warm and humid, with little variation in temperature. The annual rainfall is between 2300 mm and 4800 mm.

History: Goa has been a very important historical and cultural centre since the earliest times. It was known as Gopakpattan or Gomant which figure in the Bhishma - Parva of the Mahabharatha. It was also mentioned as Govapuri in the Suta-Samhita. Ptolemy, the great geographer (2nd century A.D.) refers in his geography to Goa as Gouba. Later on, during Kadamba times it was also known as Gopapuram or Gove.

The earliest known history of the territory which included the adjoining lands of the neighbouring states, traced back from the Mauryas. Goa was under the Satavahanas from 2nd century B.C.—thereafter, under the sway of the western Kshatrapas from 150 A.D.

Chalukyas of Badami ruled over it for over 200 years since 540 A.D. After the fall of Badami Chalukyas, Rastrakutas dominated the area including Goa for over 220 years from 753 A.D. to 973 A.D.

Kadambas of Goa replaced them and put it under their sway from 1008 A.D. to 1300 A.D. when Goa turned out to be a great centre of maritime trade. Thereafter, Goa came under the control of Yadavas of Devagiri, Delhi Sultans (1356 to 1378 A.D.), Vijayanagar Rulers (1378 to 1470 A.D.), Bahamani Sultans of Deccan and later on Adilshahis of Bijapur (1470 to 1510 A.D.).

In 1534, Diu off the southeast coast of Kathiawar (Gujarat) was occupied by the Portuguese. In 1559, Daman on the Gujarat coast, 70 miles from Bombay, was annexed by them. Inquisition which was established in Goa, largely contributed to the downfall of the Portuguese empire in the East.

It continued till 1812 with a brief break of four years from 1774. The Portuguese made the city of Panaji the capital of Goa in 1843. The Portuguese territory of Goa, Daman and Diu was finally liberated on December 19, 1961.

Under the Constitution (Twelfth Amendment) Act 1962, Goa was included in the first schedule to the Constitution as a territory of the Indian Union.

In 1966 Parliament enacted the Goa, Daman

and Diu Opinion Poll Act. In accordance with the provisions of the Act, an opinion poll was held in January 1967 to ascertain whether Goa, Daman and Diu wanted to be a Union Territory or to merge with the adjoining states of Maharashtra and Gujarat. Goa, Daman and Diu voted to continue as a Union Territory.

Goa attained full statehood on 30th May 1987 when Daman and Diu retained separate identity as a Union Territory. The Goa government has introduced (Oct. 1993) Konkani as the official language. It is written in Devnagri script.

Administration: The legislature consists of one house, the Legislative Assembly. Total seats: 40. The state is divided into two districts, North Goa and South Goa.

Districts

District	Area sq km	Population 1991	Head- quarters
North Goa	1713.0	6,63,773	Panaji
South Goa	1946.7	5,04,849	Margao

State of Economy: Essentially export-oriented because of iron ore and manganese deposits, Goa is making a determined bid to stand on its own. Paddy is the main agricultural crop, followed by ragi, cashew and coconut. Rice is the staple food of Goans. Rice production, 52,000 tonnes at the time of liberation, has gone up to 1.62 lakh tonnes. Fish, like rice, is an important component of the Goans' food. A 105 km long coastline, four thousand hectares of marshy land 12,000 hectares of paddy land and 100 hectares of fresh water sources provide ideal setting for a flourishing trade. Annual fish catch is around 50,784 tonnes (1989). A fleet of 1551 trawlers and 2450 country craft are engaged in fishing which sustains a work force of 40,000 people.

Iron ore exports aggregated to 124.16 lakh tonnes, main buyer being Japan. There are 42 large industrial units, eleven and 100 hectares of fresh water sources provide ideal setting for a flourishing trade. Annual fish catch is around 50,784 tonnes (1989). A fleet of 1551 trawlers and 2450 country craft are engaged in fishing which sustains a work force of 40,000 people.

Iron ore exports aggregated to 124.16 lakh tonnes, main buyer being Japan. There are 42 large industrial units, eleven medium-scale units and 4552 small scale units (1989). Annual growth rate of Goa during 25 years since liberation is estimated at 6%.

Universities: Goa University, Taleigao, Platteau.

Tourist Centres: Tourism is a major industry in Goa. On an average a million people, including 1.25 lakh foreigners visit Goa. The

strial status accorded to the Goan tourism been revoked. With chartered tourists acrossing 1 lakh a year and domestic tour- of over 9 lakhs mark each year, the depleted ral resources, services and the infrastruc- of the tiny state with a population of nd 12 lakhs is under considerable strain. has caused a lot of resentment against ism. Therefore, the government plans to go elective tourism. Dabolim airport, near the town of Vasco-da-Gama, is equipped to ive chartered flights. The territory is known its numerous beaches such as Calangute, va and Vagator.

amous tourist spots: Old Goa has the Basil- of Bom Jesus, where the casket containing incorruptible body of St. Francis Xavier, the stle of Goa is housed. Other famous shrines the Se Cathedral and the Assissi Church. A km away is Ponda, where the Mangueshi Temple, the Santha Durga Temple and the gueshi Temple are situated. Dona Paula, rlooking the confluence of the Mandovi river, Panaji), the Aravelam waterfalls, the Mayem e, the Dudsagar waterfalls, the Bondla sanc- ry, the Mormugao harbour and the Aguada t are some of the other tourist attractions.
Governor: Romesh Bhandari; **Chief Minis- :** Pratap Singh Rane (Cong-I).

Gujarat

Area: 196,024 sq km. **Capital:** Gandhinagar. **Language:** Gujarati. **Districts:** 19; **Popula- on:** 41,174,060; **Males:** 21,272,388; **Fe- ales:** 19,901,672; **Increase (1981-'91):** 88,261. **Growth Rate (per cent) 1981-'91:** 80. **Density (persons per sq km.):** 20. **Urban Population** 34.49%; **Sex Ratio (Fe- ales per 1,000 Males):** 936; **Literacy:** 60.91; **Males:** 72.54; **Females:** 48.50; **Per capita NSDP current prices:** Rs. 7600. **1991 Census final population total:** 41,309,582.

Gujarat, lying in the north-west corner of dia, is the tenth in point of population (1981). s bounded on the north-west by Pakistan, on e north by Rajasthan, on the east by MP and on e south and south-east by Maharashtra.

Physiography: The State of Gujarat occu- es the northern extremity of the western sea- ard of India. The state comprises three geo- aphical regions. (1) The peninsula, tradition- ly known as Saurashtra. It is essentially a hilly act sprinkled with low mountains. (2) Kutch n the north-east is barren and rocky and con- ins the famous Rann (desert) of Kutch, the big ann in the north and the little Rann in the east. (3) The mainland extending from the Rann of utch and the Aravalli Hills to the river Daman-

Adding to the forest cover

Gujarat with only 10 percent of its total geographical area under forests, is deter- mined to increase its forest cover. The immediate target is not raising the 10 per cent to the national average of 28 per cent or the ideal coverage of 33 per cent but launching schemes to improve the situa- tion significantly. The government is con- vinced that social forestry is the answer to the problem as expansion of forest areas is impossible.

A Rs. 608 crore soft loan from OECF, the official agency of the Japanese government is the latest in the forestry scheme.

According to an official spokesman; the Japanese agency was impressed by the State Government's World Bank-aided two-phase social forestry programme and had ap- proved the loan scheme which includes Rs. 200 crores for strengthening the forest ar- eas, Rs. 50 crores for wild life and the remaining for social forestry.

The Forest Minister Fakirbhai Vaghela said the efforts by the State had borne fruit and the forest coverage was increased by 627 sq.km. areas till 1993 in addition to 19,388 sq.km under the existing forest cover.

The number of lions in the Gir Sanctuary, the only abode of the Asiatic lions, had also increased from 284 to 304.

The Japanese government's loan had been necessitated by the World Bank's rejection of Gujarat's plea for the third phase of the forestry scheme.

Krishak Bharti Co-operative (KRIBHCO) and Overseas Development Administration (ODA), U.K. have a unique project to form farmers' cooperatives for preventing defor- estation and soil erosion in Panchmahals district. The project will cover all aspects of the local farming systems including crops, trees, livestock, fisheries and off-farm em- ployment. The project will also reduce sea- sonal migration of population.

The government has a scheme to allocate forest land of 50,000 hectares to over 55,000 tribal tillers who had been cultivating the lands for years. The central approval for the long-pending demand of allocating the land to tribals is awaited.

ganga is on the whole a level plain of alluvial soil.

The plains of Gujarat are watered by big rivers like Sabarmati, Mahi, Narmada, and Tapti and by smaller rivers like Banas, Saraswathi and Damanganga. The rainfall in the state, except in the arid zones of Surendranagar and north Gujarat, varies between 65 and 127 cm.

As the Tropic of Cancer passes through the northern border of Gujarat, the state has an intensely hot or cold climate. But the Arabian sea and the Gulf of Cambay in the west and the forest-covered hills in the east soften the rigours of climatic extremes.

History: On May 1, 1960, as a result of the Bombay Reorganization Act, 1960, the State of Gujarat was formed from the north and west (predominantly Gujarati speaking) portions of

Bombay State, the remainder being renamed the State of Maharashtra.

Two more Harappan sites have been found at Moti Pipari village and surrounding areas in Radhanpur and Koliwada talukas in western part of the desert areas in north Gujarat bordering Pakistan. With these 50 Harappan sites are found in North Gujarat.

Gujarat consists of the following districts of the former State of Bombay: Banas Kantha, Mehsana, Sabar Kantha, Ahmedabad, Kaira, Pancha Mahals, Vadodara, Bharuch, Surat, Dang, Amreli, Surendranagar, Rajkot, Jamnagar, Junagadh, Bhavnagar, Kachchh, Gandhinagar, and Bulsar.

Administration: Gujarat has a unicameral legislature, the Legislative Assembly, which has



ected members. The state is divided into districts.

Districts

District	Area (sq km)	Population (1991)	Headquarters
Ahmedabad	8,707	4,788,820	Ahmedabad
Amreli	6,760	1,251,454	Amreli
Ankleshwar	12,703	2,158,378	Palanpur
Bharuch	9,038	1,542,696	Bharuch
Bhavnagar	11,155	2,287,751	Bhavnagar
Gandhinagar	649	393,475	Gandhinagar
Jamnagar	14,125	1,545,188	Jamnagar
Junagadh	10,607	2,392,372	Junagadh
Khedra	7,194	3,437,487	Khedra
Kheda	45,652	1,245,967	Bhuj
Mahesana	9,027	2,929,153	Mahesana
Nandmahals	8,866	2,948,489	Godhra
Rajkot	11,203	2,509,142	Rajkot
Sankanthas	7,390	1,758,036	Himatnagar
Surat	7,657	3,391,202	Surat
Surendranagar	10,489	1,204,611	Surendranagar
Vadodas	1,764	143,490	Ahwa
Vadodara	7,794	3,073,357	Vadodara
Valsad	5,244	2,172,992	Valsad

State of Economy: Gujarat ranks first in the country in the production of cotton and groundnut and second in the production of tobacco.

Cotton and groundnut have found good markets and provide a foundation for important industries like textiles, oil and soap. Other important cash crops are isabgul, cumin, sugarcane, mangoes and bananas. The total foodgrains production during 1993-94 was 37.76 lakh tonnes, that of ground nut 6.77 lakh tonnes and cotton 16.23 lakh bales. The chief food crops of the state are paddy, wheat and bajra. Jowar and maize are produced in local areas. Valsad has become India's first integrated horticulture district— which is expected to boost exports of vegetables, fruits and flowers from the country.

Gujarat has 19.66 lakh hectares of land under forest. Gujarat has a dominant electronics industry. New industries, which are coming up, are chemicals, petrochemicals, fertilizers, drugs and pharmaceuticals, dye-stuffs and engineering units of multiple types.

In 1990-91 Gujarat ranked second after Maharashtra [22.7 per cent] among the states of India in respect of percentage share in gross value of output.

The state is a major producer of inorganic chemicals such as soda-ash and caustic soda as well as chemical fertilizers. It has the largest petro-chemical complex in the country.

The dairy industry has made tremendous adva-

nance and the state accounts for nearly 63 per cent of infant milk produced in the country. Fish production 1994-95 was 7 lakh tonnes worth Rs. 852 crore.

Exploration and production of oil and natural gas in Ankleshwar, Cambay and Kalol and oil refinery at Koyali are other industrial achievements. Near Bharuch Gujarat Narmada Valley Fertilizer Company has achieved great success. Ankleshwar industrial estate is humming with a number of industries. On the coastal areas of Saurashtra ship-breaking yards have taken shape at Alang and Sachana. Jamnagar, Porbander, Jafrabad, Bhavnagar, etc. are busy with new industries, trade and business. Total installed capacity of power was 6140.5 MW in 1993-94; and total length of roads was 69959 km.

Gujarat is a major salt-producing state and its production forms as much as 60% of the country's output.

Gujarat has now more than 70,000 small-scale units and 13,000 factories including 1328 textile factories. There are about 167 Industrial Estates in the State.

Universities: M.S. University, Baroda; Bhavnagar University, Bhavnagar; Gujarat Agri. University, Dantiwada; Gujarat Ayurveda University, Jamnagar; Gujarat University, Ahmedabad; Gujarat Vidyapith, Ahmedabad; North Gujarat University, Patan; Sardar Patel University, Vallabh Vidyanagar; Saurashtra University, Rajkot; South Gujarat University, Surat. The Gujarat government has okayed a proposal to start a Gujarat Open University (1993).

Tourist Centres: Gujarat has 4 national parks and 11 sanctuaries. The game sanctuary at Gir (the world's last habitat of the Asiatic Lion), the sacred temples of Dwaraka and Somanath, Palitana, the picturesque mountain city of Jain Temples on about 2000 feet high Shetrunjaya hills, Udwada, the oldest place of the Fire temple of Parsees in India, the 5000-year-old archaeological finds at Lothal, the 11th century Sun Temples at Modhera, bird sanctuary at Nal Sarovar, architectural monuments of Indo-Saracenic style at Ahmedabad and other places, the national shrine of Mahatma Gandhi at Sabarmati Ashram, Ahmedabad, Saputara hills in South Gujarat are just a few of the varied attractions in the state.

There is a proposal to rename Ahmedabad as Karnavati.

Governor: Naresh Chandra; **Chief Minister:** Sureshchandra Rupshankar Mehta [BJP].

Haryana

Area: 44,212 sq km; **Capital:** Chandigarh; **Language:** Hindi; **Districts:** 16; **Population:** 16,317,715; **Males:** 8,705,379; **Females:**

7,612,336; Increase (1981-91): 3,395,596; Growth Rate (per cent) 1981-91: 26.28; Density (persons per sq. km.): 372; Urban Population: 24.63%; Sex Ratio (females per 1,000 males): 865; Literacy: 55.33; Males: 67.85; Females: 40.94; Per capita income (1991): Rs. 8690 at current prices. 1991 Census final population total: 16,463,618.

The state is bounded by UP in the east, Punjab in the west, Himachal Pradesh in the north and Rajasthan in the south. The Union Territory of Delhi juts into Haryana and is encompassed by it on three sides.

Physiography: Haryana can be divided into two natural areas, sub-Himalayan terrain and the Indo-Gangetic plain. The plain is fertile and slopes from north to south with a height above the sea level averaging between 700 and 900 ft. The south west of Haryana is dry, sandy and barren. Haryana has no perennial rivers like its parent state Punjab or its eastern neighbour UP. In this respect, it has more affinity to its southern neighbour, Rajasthan. The only river which flows through Haryana is the Ghaggar, which passes through the northern fringes of the state. This river identified by some historians as the river Drishavaditi of Vedic fame is not perennial. Rainfall is meagre, particularly in the districts of Mahendragarh and Hissar.

For most of the year, the climate of Haryana is of a pronounced character, very hot in summer and markedly cold in winter. The maximum temperature is recorded in the months of May and June when it goes up to as high as 46 degrees C. The temperature falls to the lowest in January.

There are two well-marked seasons of rainfall in the State: (i) the monsoon period falling from the middle of June till September on which autumn crops and spring sowing depend, and (ii) the winter rains which occur from December to February. The Dec.-Feb. rains, though often insignificant in quantity, yet materially affect the prosperity of the spring harvest.

History: Haryana has a proud history going back to the Vedic age. The state was the home of the legendary Bharata dynasty, which has given the name Bharat to India. Haryana is immortalised in the great epic *Mahabharata*. Kurukshetra, the scene of the epic battle between the Kauravas and the Pandavas, is situated in Haryana. The state continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the imperial capital of India. Thereafter, Haryana has functioned as an adjunct to Delhi and practically remained anonymous till the first war of Indian independence in 1857 when the people of Haryana joined the leaders of the Indian revolt against the British Government.

When the rebellion was crushed and the

British administration was reestablished, Nawabs of Jhajjar and Bahadurgarh, the Raja Ballabgarh and Rao Tula Ram of Rewari of the Haryana region were deprived of their territories. Their territories were either merged with the British territories or handed over to the rulers of Patiala, Nabha and Jind. Haryana thus became a part of the Punjab province.

The modern State of Haryana came into being on November 1, 1966 as a result of the reorganization of the old Punjab State into three separate states. It was formed as a linguistic state, on the pattern of other states in India, Hindi-speaking areas of Punjab having been assigned to it.

Administration: The legislature consists of only one house, the Legislative Assembly (Vidh Sabha) of 90 members.

The state is divided into 17 districts. Panchkula, the 17th district was formed on August 15, 1995, bifurcating Ambala.

Districts

District	Area sq km	Population '91	Headquarters
Ambala	3,832	1,106,275	Ambala
Kurukshetra	3,740	635,658	Kurukshetra
Karnal	1,967	885,797	Karnal
Jind	3,306	958,165	Jind
Sonepat	2,206	744,450	Sonepat
Panipat	1,754	731,754	Panipat
Rohtak	3,841	1,780,166	Rohtak
Panchkula			
Faridabad	2,150	1,466,393	Faridabad
Gurgaon	2,716	1,128,905	Gurgaon
Mahendragarh	3,010	665,416	Narnaul
Bhiwani	5,099	1,122,487	Bhiwani
Hissar	6,315	1,835,555	Hissar
Sirsa	4,276	902,082	Sirsa
Rewari	—	623,443	Rewari
Kaithal	—	818,352	Kaithal
Yamunanagar	—	818,401	Yamunanagar

State of Economy: Since its creation in 1966, Haryana has become India's fastest growing state, offering its citizens the third highest per capita income.

Agricultural development in Haryana has been tremendous. The production of foodgrains, sugarcane (gur), oilseeds and cotton has risen to great levels.

Haryana was the first state to introduce crop insurance scheme in north India. In 1992, Haryana produced 102.40 lakh tonnes of foodgrains.

Dairy industry is also highly developed in Haryana. Haryana is proverbially known as the milk basket of India. Per capita per day availability of milk

9 grams against the Indian average of 180 grams.

The major industries are cement, sugar, paper, cotton, textiles, glassware, brassware, cycles, tractors (largest production in the country), motorcycles, timepieces, automobile tyres and tubes, sanitaryware, television sets, steel tubes, hand tools, cotton yarn, refrigerators, vanaspati, ghee and canvas shoes. A factory of the Hindustan Machine Tools producing tractors is located at Pinjore. Gurgaon is a fast growing industrial hub where Maruti Udyog is the central piece.

In all, in Haryana there are at present 20,000 small scale industrial units as well

as 635 large and medium scale units.

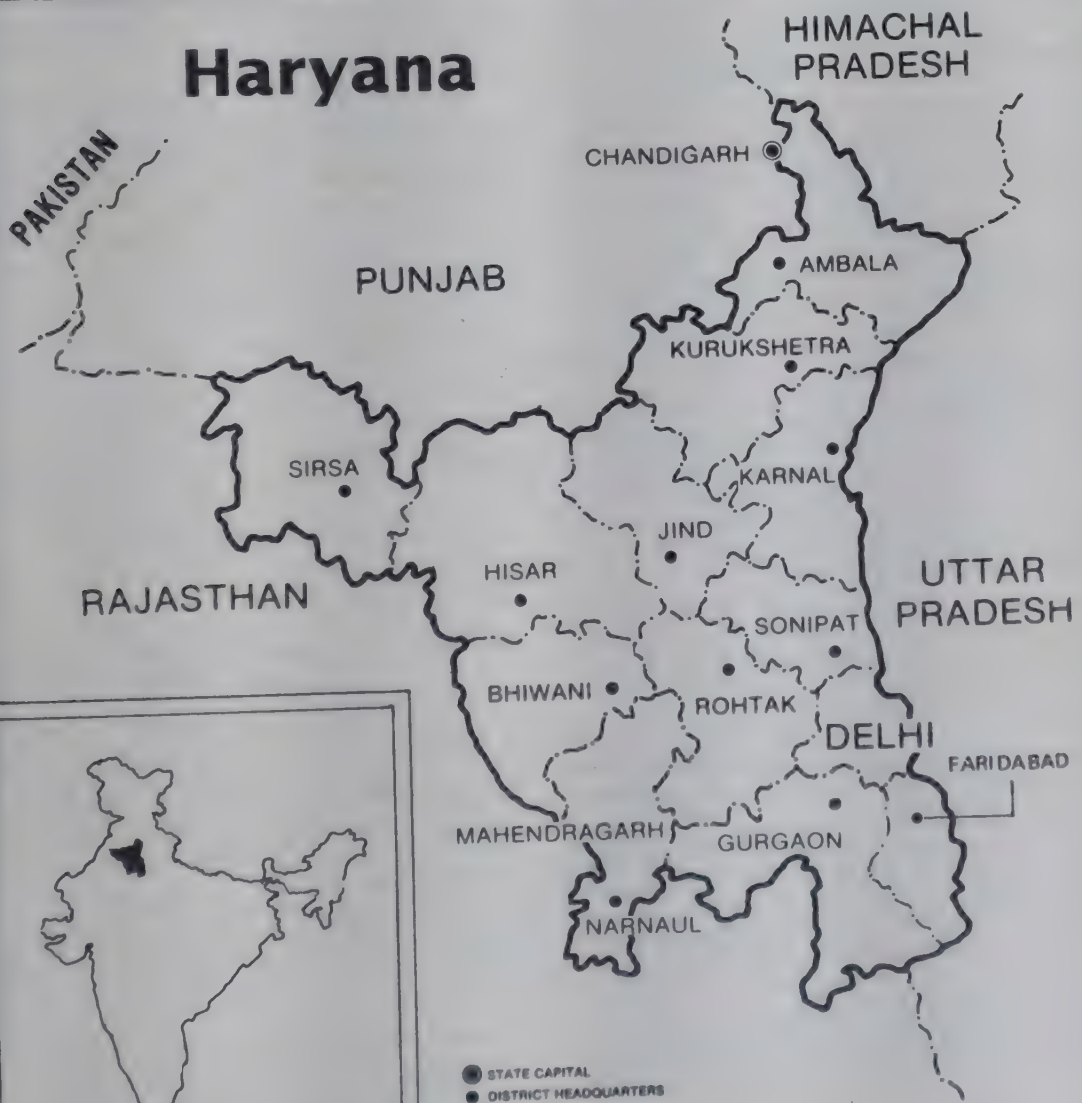
Haryana is the first state to have electrified all of its villages. Total road length in the state is 23,168 km.

The Indian Army has 11.2% of its soldiers from Haryana

Universities: Maharshi Dayanand University, Rohtak; Kurukshetra University, Kurukshetra; Haryana Agri University, Hissar; National Dairy Research Inst., Karnal.

Tourist Centres: Raj Hans, Badhkal Lake, Surajkund, Dabchik, Sultanpur, Barbet, Sohna and Pinjore. Haryana has a network of 43 tourist complexes. Over 6,600,000 tourists visited these complexes in 1993-94

Haryana



Haryana girdles Delhi from three sides with all the national highways to these tourist centres running through it.

Hotel Raj Hans stands above Surajkund and overlooks the Peacock Lake and bestows its comforts to foreign and domestic tourists coming to Delhi or Haryana.

During 1992-'93, 58 lakh tourists visited the state. In 1993 tourism was declared an industry. Since then tourism has diversified into Cultural and Rural tourism. It is also promoting Adventurism in a big way.

Haryana Tourism has repeatedly won awards from the Pacific Area Travel Association and the Travel Agents Association of India.

Governor: Mahabir Prasad; **Chief Minister:** Bhajan Lal (Congress-I).

Himachal Pradesh

Area: 55,673 sq km; **Capital:** Shimla; **Languages:** Hindi and Pahari; **Districts:** 12; **Population:** 5,111,079; **Males:** 2,560,894; **Females:** 2,550,185; **Increase (1981-91):** 830,261; **Growth Rate (per cent) 1981-91:** 19.39; **Density (Persons per sq. km.):** 92; **Urban Population:** 8.69%; **Sex Ratio (females per 1000 males):** 996; **Literacy:** 63.54; **Males:** 74.57; **Females:** 52.46. **Per capita income (89-90):** Rs. 4005. **1991 Census final population total:** 5,170,877.

Physiography: Himachal Pradesh is situated in the north west corner of India, right in the lap of the Himalayan ranges. It is surrounded by Jammu and Kashmir in the north, Uttar Pradesh in the south east, Haryana in the south and Punjab in the west, in the east, it forms India's boundary with Tibet.

The state is almost entirely mountainous with altitudes ranging from 460 to 6600 metres above sea level. It has a deeply dissected topography, a complex geological structure and a rich temperate flora in sub-tropical latitudes.

Physiographically, the state can be divided into two regions, southern and northern. The southern part of Himachal Pradesh is almost as hot as the plains, while the northern region has a temperate summer and a winter with extreme cold and heavy snowfall. The districts of Shimla and Sirmaur have alluvial soil, while the remaining ten districts have forest and hill soils. The normal rainfall of Himachal Pradesh is 181.6 cm. Maximum rainfall is noticed at Dharmasala in Kangra district.

Himachal Pradesh is drained by a number of rivers, the most important of which are Chenab,

Ravi, Beas, Sutlej and Yamuna. All these rivers are snow-fed and hence perennial. Besides, the natural reservoirs and the large drops available in the river courses provide immense potential for hydel power generation at low cost.

History: Himachal Pradesh was originally formed as a centrally-administered territory on April 15, 1948 by the integration of some hill and odd Punjab hill states. In 1951, it became Part C state under a Lt. Governor, with a Legislative Assembly of 36 members and a Cabinet of three ministers. In 1954, Bilaspur, another Part C state was merged with Himachal Pradesh and the strength of the Assembly was raised to 40 members.

In 1956, the States Re-organization Commission recommended the merger of Himachal Pradesh with Punjab. But the people of Himachal Pradesh so stoutly opposed the merger that it was not put into effect.

Till October, 1966 Himachal Pradesh consisted of only six hill districts Mahasu, Mandi, Chamba, Sirmaur, Bilaspur and Kinnaur. In November, 1966, it was enlarged by the addition of some of the hilly areas of Punjab Shimla, Kangra, Kulu, Lahaul and Spiti districts and the Nalagarh tehsil of Ambala district and areas of Hoshiarpur and Gurdaspur districts.

Himachal Pradesh was re-organized into 12 districts and declared a state on January 25, 1971 with Shimla as its capital. In 1972-73, the districts were reshuffled bringing up the number to 12.

Administration: There is only one house of legislature, i.e., Vidhan Sabha, with 68 members.

The state is divided into 12 districts.

Districts

District	Area sq km	Population 1991	Headquarters
Bilaspur	1,167	291,388	Bilaspur
Chamba	6,528	391,047	Chamba
Hamirpur	1,118	359,322	Hamirpur
Kangra	5,739	1,149,744	Dharamshala
Kinnaur	6,401	70,931	Kalpa (Pahalgam)
Kulu	5,503	301,729	Kulu
Lahaul & Spiti	13,835	30,820	Keylong
Mandi	3,950	768,446	Mandi
Shimla	5,131	614,892	Shimla
Sirmaur	2,825	378,801	Nahargarh
Solan	1,936	379,320	Solan
Una	1,540	374,639	Una

State of Economy: Agriculture and horticulture are the mainstay of Himachal's economy as 71 per cent of people are engaged in these pursuits. Irrigated area forms 26 per cent of

* This is a projected figure as the 1991 census operation has not yet been conducted in the state.

area sown. However, the agroclimatic conditions in the state are more suitable for growing a variety of fruits and cash crops like seed potatoes, ginger, vegetable seeds, apples, stone fruits, etc. Wheat, maize and paddy are the major cereal crops under cultivation.

The state continues to be industrially backward despite vast natural resources endowment and plentiful availability of cheap hydel power.

A 1500 MV Nathpa Jhakri hydro electric project is under construction to ensure adequate power supply. There are about 20,000 small scale industrial units in the organized sector employing about 75000 persons besides numerous cottage and village industrial units. A most modern and sophisticated food processing plant with a capital outlay of about Rs. 400 crore has been set up at Parwanoo. Among major and medium industries are

Nahan Foundry, Nahan; Resin and Turpentine factories at Nahan and Bilaspur; Mohan Meakin Breweries, Solan and United Diamonds Ltd., Parwanoo. District Industries Centres have been functioning in all the 12 districts. An Electronics Development Corporation also has been set up.

Universities: Dr. Y. S. Parmar University of Horticulture & Forestry, Solan; H.P. University, Shimla; H. Pradesh Krishi Vishwa Vidyalay, Palampur.

Tourist Centres: Himachal Pradesh is studded with a number of hill stations which are refreshingly cool in summer. They offer to the tourists a quick holiday amidst breath-taking scenery. Shimla, Dalhousie, Dharmasala (The Dalai Lama lives here), Kulu, Kasauli, Solan, Chail and Kufri are some of the famous hill stations.

Kharjiar in Chamba district has earned the

Himachal Pradesh



name 'Mini Switzerland' because of the striking similarity in landscape.

The state abounds in wild life among which are some rare species like musk deer, ibex, thar, Himalayan brown bear and snow leopard among animals and monal, tragopan, kokiash and snowcocks among birds. The rivers offer ideal fishing grounds for trout in Katrain, Rohru and Barot and for masheer in Maryoga, Karganua and Dedahu.

Governor: Mrs. Sheila Kaul; **Chief Minister:** Virbhadra Singh (Cong-I).

Jammu & Kashmir

Area: 222,236 sq km; **Capital:** Srinagar (Summer) Jammu (Winter); **Districts:** 14; **Population:** 7,718,700* **Languages:** Urdu, Kashmiri, Dogri, Ladakhi, etc.; **Literacy:** 26.17%; **Per capita income (88-90):** Rs. 3420. **Religious population (1981):** Hindus - 1,930,448; Muslims - 3,843,451; Christians - 8,481; Sikhs - 133,675; Buddhists - 69,706.

Physiography: The state lies in the extreme north of the country and is bounded on the north by China, on the east by Tibet and on the south by Himachal Pradesh, Punjab and Pakistan. The official language is Urdu.

History: The State of Jammu and Kashmir which had earlier been under Hindu rulers and Muslim sultans, became part of the Mugal Empire under Akbar. After a period of Afghan rule from 1756, it was annexed to the Sikh kingdom of the Punjab in 1819. In 1846 Ranjit Singh made over the territory of Jammu to Maharaja Gulab Singh. After the decisive battle of Sabroon in 1846 Kashmir also was made over to Maharaja Gulab Singh under the Treaty of Amritsar. British supremacy was recognised until the Indian Independence Act 1947.

When all the states decided on accession to India or Pakistan, Kashmir asked for stand-still agreements with both. In the meantime, the state became the subject of an armed attack from Pakistan and Maharaja acceded to India on 26th October, 1947 by signing the instruments of accession. India approached the U.N. in January, 1949. Another round of war between the two countries in 1965 was followed by the Tashkent Declaration in January 1966.

Following the liberation movement in the former eastern wing of Pakistan, Pakistan attacked India in December, 1971. It was followed by the Shimla Agreement in July, 1972. A new line of control was delineated bilaterally to replace the cease-fire line between the

two countries in Jammu and Kashmir.

The Maharaja's son Yuvraj Karan Singh took over as Regent in 1950 and on the ending of hereditary rule (17th October, 1952) was sworn in as a Sadar-i-Riyasat. On his father's death (26th April, 1961) Yuvraj Karan Singh was recognised as Maharaja by the Indian Government. He decided, however, not to use the title.

Administration: The Constitution of the state came into force in part on 17th November, 1952 and fully on 26th January, 1957. The constitution provides for a bicameral Legislature (i) the Legislative Assembly (ii) the Legislative Council.

The State comprises 14 districts, of which each fall in Jammu and Kashmir region and two in Ladakh region.

Districts

District	Area (sq km)	Population '81 ^{oo}	Headquarters
Anantnag	3,984	656,351	Anantnag
Badgam	1,371	367,262	Badgam
Baramula	4,588	670,142	Baramula
Doda	11,691	425,262	Doda
Jammu	3,097	943,395	Jammu
Kargil	14,036	65,992	Kargil
Kathua	2,651	369,123	Kathua
Kupwara	2,379	328,743	Kupwara
Ladakh	82,665*	68,380	Ladakh
Pulwama	1,398	404,078	Pulwama
Poonch	1,674	224,197	Poonch
Rajauri	2,630	302,500	Rajauri
Srinagar	2,228	708,328	Srinagar
Udhampur	4,550	453,636	Udhampur

Includes 37,555 sq km under illegal occupation of China.

No census was taken in 1991.

The J & K government and the Centre have agreed in principle to grant autonomy to the Ladakh area of the Ladakh district.

State of Economy: Agriculture is the mainstay of the State's economy, as about 80 per cent of the population depend on it. Paddy, wheat and maize are the major crops. Barley, bajra and jowar are cultivated in some parts. Gram is grown in Ladakh.

Kashmir handicrafts have always been a byword for excellence. The tradition of creating papier mache, wood carving, carpet and shawl making, etc. is very old in Kashmir. This sector provides employment to about 10 lakh people. Kashmir handicrafts particularly carpets earn substantial foreign exchange for the country. In 1985-86 Kashmir handicrafts worth Rs. 40.00 crore were exported.

Universities: University of Jammu, Jammu; University of Kashmir, Srinagar; Sher-e-Kashmir

*This is a projected figure as the 1991 census operation has not yet been conducted in the state.

University of Agl. Sciences & Tech., Srinagar.
Tourist Centres: Kashmir is the paradise for tourists both international and domestic. Main centres of attraction are Srinagar, Pahalgam, Gulmarg, Sonamarg, etc. Among places of pilgrim interest are Amarnath and Vaishno Devi. The tourist industry in the state has registered phenomenal growth during the past decades. In the Seventh Plan the outlay for tourism development was Rs. 2250 crore. Tourist arrivals rose to the record level of 1 million by the end of the 1980s. Because of disturbed conditions, tourism is in disarray since 1990. The J & K Government has declared tourism as an industry. Ladakh, the meeting point of Indo-Tibetan and Central Asian cultures has the potential to be developed as a great tourist destination. Leh

has an airport. But there are no facilities on the 348-km stretch between Keylong in Himachal Pradesh and Karu in Leh District. However, Manali in Himachal is linked to Leh by road.

The state has been under Governor's rule from January 19, 1990 and under President's rule since July, 19, 1990. Presently, the intransigence continues as the militants being abetted by Pakistan are involved in violent activities and mass indoctrination of young people to secede from India. Indian government and the armed forces are observing maximum restraint in spite of provocative situations like militants' take over of Hazratbal Mosque with heavy weapons. The siege of the Mosque ended on 16 November 1993.

Governor: Gen. K. V. Krishna Rao. [President's rule]

Jammu & Kashmir



Karnataka

Area: 191,791 sq km; Capital: Bangalore;
Language: Kannada; Districts: 20; Popula-
tion: 44,817,398; Males: 22,861,409; Fe-
males: 21,955,989; Increase (1981-91):
7,681,584; Growth Rate (per cent) 1981-91:
20.69; Density (persons per sq. km.): 234;
Urban Population: 30.92%; Sex Ratio (fe-

males per 1000 males): 960; Liter-
55.98% Males: 67.25; Females: 44.34;
capita income (89-90): Rs. 4075. 1991
sus final population total: 44,977,201
Karnataka is the eighth largest state in
both in area and population. It was for-
known as Mysore. On November 1, 1956
name *Mysore* was changed to *Karnataka* by
The Mysore State (Alteration of Name) Act
The change is much more than a chan-

Karnataka



oclature. It is the revival of a great image region which, under the name of Karnataka, attained glorious heights in history.

Geography: Karnataka is situated on the edge of the Deccan plateau and has for neighbours Maharashtra and Goa on the west, Andhra Pradesh on the east and T. Nadu on the south. On the west, it opens into the Arabian Sea.

Geographically, the state can be divided into four regions (1) The Coastal Region, (2) the Deccan, (3) the Northern plains and (4) the Western plains.

Two important river systems of Karnataka are the Krishna and its tributaries (Bhima, Malaprabha, Tungabhadra and Kaveri) in the north, and the Cauvery and its tributaries (Hemavati, Shimsha, Arkavati, Lakshmana Thirtha and Kabini) in the south. Both rivers flow eastward and fall into the Bay of Bengal, the Krishna passing through Andhra Pradesh and the Cauvery traversing Tamil Nadu. A number of smaller rivers flow westward into the Arabian Sea. Of these Sharavati, Kalinadi and Netravati are important to Karnataka. They are being tapped for hydro-electric power.

History: The name Karnataka is derived from Karunadu, literally, lofty land. As much of Karnataka is high plateau land, the name is fully justified. The history of Karnataka goes back to the early days of the epics. The capital of Bali and Sugreeva, monkey kings of the Ramayana, is said to have been Hampi in Bellary district. Sri, associated with the Sage Agastya, is said to have been Badami in Bijapur district.

In the 4th century B.C. Karnataka was part of the great Mauryan Empire. Siwamagiri (Kanakagiri in Raichur district) is said to have been the northern capital of the Mauryas. About 30 B.C. a new dynasty, Satavahana, came to power. The Satavahana Empire lasted nearly 300 years. With the disintegration of the Satavahana dynasty, the Satavahas came to power in the north, and the Satavahas in the south. The gigantic monolithic statue of Gomateswara at Sravanabelagola is considered to be a monument of the Ganga period. At the beginning of the sixth century A.D., the Chalukyas established a new empire. After the fall of the Chalukyan empire, the Yadavas of Devagiri and the Hoysalas of Dwarasamudra divided Karnataka between them.

In the 14th century, the great Vijayanagar Empire was established. It was an age of glory and prosperity. A confederation of the Muslim sultans of the Deccan destroyed the Vijayanagar Empire in 1565 (Battle of Talikota). The vast ruins at Hampi, near Hospet, remain to day as bare reminders of Vijayanagar glory.

In A.D. 1399 Yaduraya, the ruler of a small principality, Mysore, founded the Wodeyar dynasty.

Raja Wodeyar (A.D. 1578—1612) enlarged the principality into a mighty kingdom, with Srirangapatnam as his capital. The Wodeyars were overthrown by Hyder Ali, the intrepid Muslim general of Mysore. With the defeat of Tipu, the son of Hyder Ali, by the British, the Wodeyars were restored to power as a feudatory of the British.

During British rule, the Karnataka area was distributed among the Princely States of Mysore, Hyderabad, and the British provinces of Bombay and Madras and the small principality of Coorg.

The formation of the present State represented the fulfilment of the age-old aspirations of Kannada-speaking people to come together in a single state. The old Kingdom of Mysore formed the nucleus of the new state. Under the States Reorganization Act, the Kingdom of Mysore gathered around the districts of Kanara, Bijapur, Dharwar and the major portion of Belgaum district in the Gulbarga, Raichur and Bidar districts, from the princely State of Hyderabad, Dakshina Kannada district (excluding Kasargod Taluk) from the old Madras Presidency and the whole of the Part C State of Coorg.

Administration: The Legislature is made up of two houses, the Legislative Assembly of 224 members and the Legislative Council of 75 members.

The state is divided into 20 districts.

Districts

District	Area in (sq km)	Population '91	Head quarters
Bangalore	8005	4823951	Bangalore
Bangalore Rural	3814	1665468	Bangalore
Belgaum	13415	3520406	Belgaum
Bellary	9885	1892715	Bellary
Bijapur	17069	2914667	Bijapur
Bidar	5448	1251060	Bidar
Chickmagalur	7201	1016839	Chickmagalur
Chitradurga	10852	2177638	Chitradurga
Dakshina Kannada	8441	2692081	Mangalore
Dharwad	13738	3498814	Dharwar
Gulbarga	16224	2573900	Gulbarga
Hassan	6814	1566412	Hassan
Kodagu	4102	485229	Madikeri
Kolar	8223	2211304	Kolar
Mandya	4961	1643626	Mandya
Mysore	11954	3155995	Mysore
Raichur	14017	2307049	Raichur
Shimoga	10553	1900429	Shimoga
Tumkur	10598	2301448	Tumkur
Uttara Kannada	10291	1218367	Karwar

State of Economy: Karnataka is predominantly rural and agrarian. About 76 % of its population lives in rural areas while about 71 %

of its working force is engaged in agriculture and allied activities which generate 49% of the state income.

Among the agriculture crops, Karnataka accounts for 59% of the country's coffee production and 47% of the country's ragi production. Rice, jowar, ragi, millet, ground nut and sesame are other crops.

There are a number of big industries. Machine tools, aircraft, electronic products, watches and telecommunication equipment are some of the items produced. Important public sector units are Hindustan Aeronautics, Hindustan Machine Tools, Bharat Earth Movers, Bharat Electronics, Indian Telephone Industries and National Aeronautical Laboratory. The state-owned Viswesvaraya Iron & Steel Ltd., Bhadravathi, produces special steel and alloy steel. Peenya, the biggest industrial estate in Karnataka, is one of the largest in the country.

Kudremukh Iron Ore is another major development project. Karnataka accounts for 85 per cent (467 tonnes) of the raw silk produced in the country. Karnataka's sandal soap and sandal oil are well known in world markets. The third naval base in India with an outlay of Rs. 2000 crore is being set up at Karwar.

Universities: Bangalore University, Bangalore; Gulbarga University, Gulbarga; Indian Institute of Science, Bangalore; Karnataka University, Darwad; Kuvempu University, Shimoga; Mangalore University, Mangalore; University of Mysore, Mysore; University of Agricultural Sciences, Hebbal; University of Agricultural Sciences, Dharwad. A Sanskrit University named after Rajiv Gandhi is proposed to be set up at Sringeri. The government has decided to grant the status of deemed university to five institutions which come under the Manipal Academy of Higher Education. These are: The Kasturba Medical College, and the Associated Teaching Hospitals, the College of Dental Surgery (all in Manipal), College of Nursing and associated teaching institutions (Mangalore). The Rajiv Gandhi University is the latest addition. The National Institute of Mental Health and Neuro Sciences [NIMHANS], Bangalore has been recognised as a deemed university.

Tourist Centres: The 'garden city' of Bangalore has been adjudged the cleanest city in India more than once. A trip from Bangalore to Mysore, the capital of the Wodeyars via Srirangapatnam, the capital of Tippu Sultan, is quite rewarding.

Mysore city is famous for the Dasara festival during September–October. The famous Krishnaraja Sagar dam and Brindavan gardens are nearby.

Among the natural parks is Bandipur Wildlife Sanctuary, 80 km south of Mysore. Belur, on the bank of river Yagachi, was once the flourishing capital of Hoysala Empire. Sravanabelagola

where the 18-metre statue of Gomateswara stands is a Jain pilgrim centre. Gersoppa (Jog Falls) is world famous.

Governor: Khurshid Alam Khan. **Chief Minister:** H.D. Deve Gowda [Janata Dal]

Kerala

Area: 38,863 sq km; **Capital:** Thiruvananthapuram; **Language:** Malayalam; **Districts:** 14; **Population:** 29,011,237; **Males:** 14,218,167; **Females:** 14,793,070; **Increase (1981-91):** 3,557,557; **Growth Rate (per cent) 1981-91:** 13.98; **Density (persons per sq. km):** 747; **Urban Population:** 26.31%; **Sex Ratio (females per 1000 males):** 1040; **Literacy:** 90.59%; **Males:** 94.45; **Females:** 86.93; **Per capita income (92-93):** Rs. 5,065. **1991 Census final population total:** 29,698,518.

Kerala is a small state, tucked away in the south west corner of India. It represents only 1.18 per cent of the total area of India but 3.43 per cent of the total population of the country is Kerala.

Physiography: Kerala may be divided into three geographical regions: (1) Highlands, (2) Midlands and (3) Lowlands. The Highlands slope down from the Western Ghats which rise to an average height of 900 m, with a number of peaks well over 1,800 m in height. This is the area of major plantations like tea, coffee, rubber, cardamom and other spices.

The Midlands, lying between the mountains and the lowlands, is made up of undulating hills and valleys. This is an area of intensive cultivation. Cashew, coconut, arecanut, cassia (tapioca), banana, rice, ginger, pepper, sugarcane and vegetables of different varieties are grown in this area.

The Lowlands or the coastal area, which is made up of the river deltas, backwaters and the shore of the Arabian sea, is essentially a land of coconuts and rice. Fisheries and coir industries constitute the major industries of this area.

Kerala is a land of rivers and backwaters. Forty-four rivers (41 west-flowing and 3 east-flowing) cut across Kerala with their innumerable tributaries and branches, but these rivers are comparatively small and being entirely monsoon-fed, practically turn into rivulets in summer, especially in the upper areas.

The backwaters form a specially attractive and economically valuable feature of Kerala. They include lakes and ocean inlets which stretch irregularly along the coast. The biggest backwater is the Vembanad lake, some 200 sq km in area, which opens out into the Arabian Sea at Cochin port. The Periyar, Pamba, Manimala, Achenkovil, Meenachil and Moovattupuzha

Kerala



ers drain into this lake. The other important backwaters are Veli, Kadinhamkulam, Anjengo (Anju Thengu), Edava, Nadayara, Paravoor, Ashtamudi (Quilon), Kayamkulam, Kodungallur (Cranganore) and Chetuvu. The deltas of the

Attacking Urban Poverty

It was at Changanassery in Kerala's Kottayam district that the Prime Minister launched the Rs. 6,400-crore integrated urban poverty eradication programme (IUPEP), which aims at attacking poverty frontally.

The programme being implemented in 345 Class II cities in the country, including nine in Kerala, over a period of five years would be a continuing process, and would benefit 47,00,000 urban poor and with the whole-town approach benefit 2.36 crore population in these towns.

Apart from Changanassery where Prime Minister P.V. Narasimha Rao launched the programme on November 18, 1995, the Kerala towns to benefit from the programme are Kodungalloor, Kayamkulam, Chittur-thathamangalam, Payyannur, Taliparamba, Thiruvalla, Ponnani, and Kasargod. Mr. Rao said that Changanassery would be made an experimental station for implementing the Prime Minister's yojana. It should be a model to other centres.

The main thrust was to encourage unemployed urban youth to set up small micro-enterprises relating to servicing, petty business and manufacturing for which there is a lot of potential in urban areas. Local craft and skills would be encouraged for this purpose.

Profession-wise lists of the people would be prepared. Women would participate in implementing the project. It should be able to retain people at the village level so that the exodus to cities can be minimised. Computer experts of villages working in towns should be brought back to their native place through these programmes.

Two and a half lakh villages have already been covered by Capart for helping artisans. Another two and a half lakh villages remain to be covered.

At the national level it is proposed to establish a National Urban Poverty Eradication Fund with contributions from the private sector. The programme envisages NGO participation and also proposes to establish and support self-reliant community-based women's groups.

rivers interlink the backwaters and provide excellent water transportation in the lowlands of Kerala. A navigable canal, 367 km long stretches from Thiruvananthapuram, the capital of Kerala, to Tirur in the far north.

History: When India became free, Kerala as we know today was non-existent. Kerala was then under three administrative set up—princely states, Travancore and Cochin, and Malabar which was under the direct administration of the British. One of the first steps taken in independent India was to amalgamate princely states together so as to make them viable administrative units.

Accordingly Travancore and Cochin states were integrated to form Travancore-Cochin State on 1st July, 1949. However, Malabar remained as part of the Madras Province. Under the State Re-organization Act of 1956, Travancore-Cochin State and Malabar were united to form the State of Kerala on 1st November, 1956.

Some territorial adjustments had necessarily to be made on re-organization. In this adjustment, Kerala lost to Madras (now Tamil Nadu) the taluks of Thovala, Agasteeswaram, Kalkulam and Vilavancode in the far south and Shencottah in the east, while it gained the Malabar district and the Kasargod taluk of South Kanara district in the north. The Laccadive Minicoy and Amindiv islands lying off the coast of Malabar were detached from Kerala and declared as Union Territory.

Administration: The state has a unicameral legislature. The Legislative Assembly has 105 members.

The state is divided into 14 districts.

Districts

Districts	Area sq km	Population '91	Headquarters
Thiruvananthapuram	2,192	2,938,583	Thiruvananthapuram
Kollam	2,579	2,398,285	Kollam
Alappuzha	1,256	1,990,603	Alappuzha
Pathanamthitta	2,731	1,186,628	Pathanamthitta
Kottayam	2,204	1,819,581	Kottayam
Idukki	4,998	1,076,555	Idukki
Ernakulam	2,408	2,797,779	Ernakulam
Thrissur	3,032	2,734,333	Thrissur
Palakkad	4,480	2,376,160	Palakkad
Malappuram	3,548	3,093,190	Malappuram
Kozhikode	2,345	2,612,897	Kozhikode
Wyanad	2,132	671,195	Kalpet
Kannur	2,997	2,244,819	Kannur
Kasargod	1,961	1,070,629	Kasargod

State of the Economy: Kerala with its high population presents complex problems in

ere of food, employment and housing. The e is 50 per cent short of food. Owing to orical and climatic reasons the state has eloped commercial agriculture more than d crops. Consequently, the state is short of dgrains, especially rice which is the staple d of the people. Out of a gross cropped area 0.21 lakh hectares in 1992-93, the share of d crops (cereals, millets, pulses and tapioca) only 23%.

erala has a unique cropping pattern. It acnts for 92 per cent of India s rubber, 70 per t of coconut, 60 per cent of tapioca and ost 100 per cent of lemon grass oil. Kerala is single largest producer of a number of other ps like banana and ginger, besides tea and fee in abundance.

***Rubber:** Production stood at 408,300 tonnes 1993-94 as against 86,773 tonnes in 1970-71. gures for India: 435,160 and 92,171, respec- ely). Area under rubber increased from 3,424 to 437,100 hectares during the same od. (Figures for India: 217,198 and 508,420). ***Coffee:** In 30 years coffee production in the te increased more than seven times. In '92-93 rala produced 25,000 tonnes. Production rked an increase because of rise in produc- ity.

***Tea:** 1992-93 total production of tea in the te was 56,250 tonnes. Around 34,700 hect- are under tea plantation.

***Cardamom.** The area under cardamom de- ned to 39,930 hactares in 1992-93 against 3,670 hactares in 1991-92, and production fell om 3450 tonnes in '91-92 to 2424 tonnes in 92-93.

Coir and Cashew are two of the largest tradi- onal industries in the state. Cashew produc- on was 90,000 tonnes in 1992-93. Handloom so is fairly developed. Bamboo-based Indus- es are also thriving. In 1989-'90 cashew worth Rs. 360 crore and coir products worth Rs. 3.52 crore were exported.

Fisheries also is developed. Out of a total arine products export of 139,419 tonnes from dia during 1990-'91 Kerala's share was 50,997 nnes i.e. 36.58%. Fish production in 1992 was 33,000 tonnes.

Total number of small scale units was 95,851 March, '93. Number of working factories was 3,946 by end of 1992. Joint stock companies se to 5,228 by March '93.

In 1991 the state announced a new industrial policy of liberalisation for private entrepreneurs.

Universities: Kerala University, Thiruv- anthapuram; Calicut University, Thenjippalam Malappuram Dist.); Cochin University of Sci- nce and Technology, Kochi; Mahatma Gandhi niversity, Kottayam; Kerala Agl University, hrissur; Sree Sankara Sanskrit University, Kaladi

(Ernakulam Dist.). Number of colleges under Universities: (a) Kerala: 45, (b) Calicut: 72, (c) M.G.: 57. An ordinance establishing Malabar University with headquarters at Kannur was promulgated in November 1995.

The first fully literate Municipal Town (Kottayam-1989), and District (Ernakulam—1990) in India are in Kerala. In 1991, Kerala became the first fully literate state in India.

Infant mortality rate in Kerala is 16 per 1000 live births.

Tourist Centres: Under the aegis of the Department of Tourism and Kerala Tourism Development Corporation, many places in Kerala have been developed into tourist centres. Kerala is a state which has notified tourism as an industry. In November, 1995, Government said that 15 selected places in the state would be developed as tourist centres. Government en- courages joint and private ventures in tourism industry along with government sponsored schemes.

Thiruvananthapuram (Trivandrum) the capi- tal city is an abode of temples, mosques and churches. Kovalam Beach Resort is just 12 km away. Veli (8 km.), Neyyar Dam (19 km), and Ponmudi (61 km) are other places of interest.

Periyar Wild life Sanctuary at Thekkady in ldukki District is another attraction. Sabari- mala, abode of Lord Ayyappan, is a famous pilgrim centre in Pathanamthitta Dist.

Kochi (Cochin)—the major port of Kerala— is known as the Queen of the Arabian Sea. The beautiful Willingdon Island with the adjoining port is a great attraction. Kalady in Ernakulam District is the birthplace of Sri Sankaracharya. Guruvayur in Thrissur Dist. has the famous Lord Krishna shrine. Kalamandalam, the re- nowned Kathakali Centre is in Thrissur Dist. Kozhikode (Calicut) is historically important as the capital of the Zamorins. Edakal cave in Wyanad district is centuries old. The panto- mime dance-drama *Kathakali* performed by men, "the dance of the enchantress" *Mohiniyattam* performed by women and *Thullal*, the solo dance exposition are among the classi- cal dance forms of Kerala.

Governor: P. Shiv Shankar; **Chief Minister:** A.K. Antony (Congress-I).

Madhya Pradesh

Area: 443,446 sq km; **Capital:** Bhopal; **Dis- tricts:** 45; **Population:** 66,135,862; **Males:** 34,232,048; **Females:** 31,903,814; **Increase (1981-91):** 13,957,018; **Growth Rate (per cent) 1981-91:** 26.75; **Density (persons per sq. km.):** 149; **Urban Population:** 23.18%; **Sex Ra- tio (females per 1000 males):** 932; **Literacy:**

43.45%; Males: 57.43; Females: 23.39; Language: Hindi; Per capita income (89-90): Rs. 2878 (based on 70-71 series). 1991 Census final population total: 66,181,170.

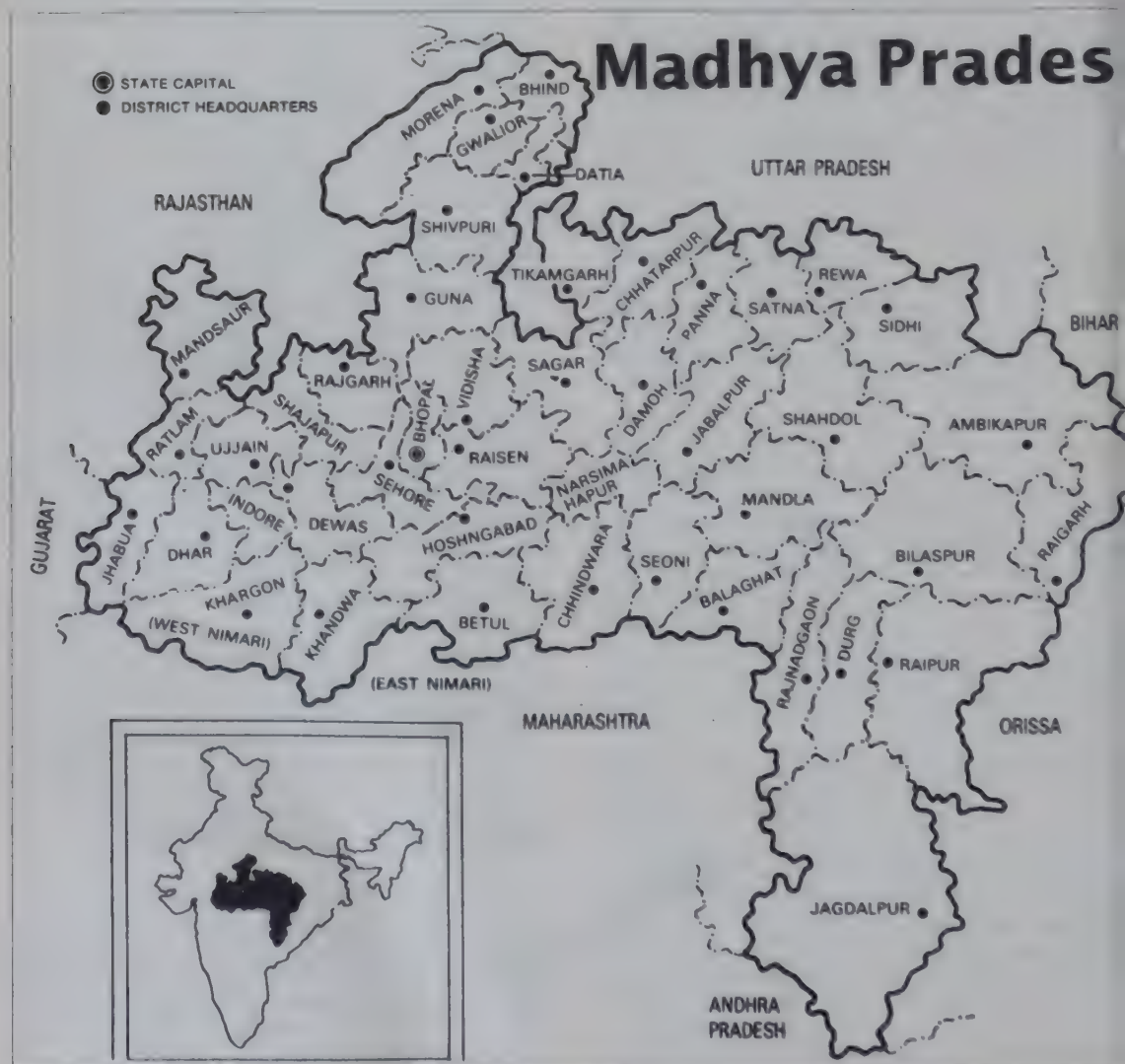
Physiography: Situated in the centre of India, M.P. is the biggest state in the country. Except for the valleys of the Narmada and the Tapi, M.P. consists of a plateau with a mean elevation of 1600 ft above sea level, interspersed with the mountains of the Vindhya and the Satpura ranges. The main river systems are the Chambal, Betwa, Sindh, Narmada, Tapi, Mahanadi and Indravati.

The average rainfall in the different regions of the state ranges from 45 to 90 cm. The climate is extreme in the north, temperate and breezy in the plateau and generally hot and humid in the eastern and southern plains. Nearly a third of the state's area is covered with tropical forests.

M.P. has the largest population of Scheduled Tribes of all states and a high proportion of Scheduled Castes. Together, they constitute nearly one-third of the population. 23 districts are predominantly tribal. The major tribes are Gonds, Bhils, Oraons, Korkens and Khasi. Massive development efforts under tribal plan are going on in these areas.

History: Under the provisions of the State Reorganization Act, 1956, the State of Madhya Pradesh was formed on November 1, 1956. It consists of the 17 Hindi districts of the previous state of that name, the former State of Madhya Bharat (except the Sunel enclave of Mandla district), the former Vindhya Pradesh, the State of Bhopal and Sironj subdivision of Kotah district, which was an enclave of Rajasthan.

Administration: The Legislature is unicameral.



with one house the Legislative Assembly. The state is divided into 45 districts. The High Court is located at Jabalpur— and benches at Gwalior and Indore respectively.

Districts

District	Area (sq km)	Population (1991)	Head-quarters
Balaghat	9,229	1,362,731	Balaghat
Jabalpur	39,114	2,270,472	Jabalpur
Betul	10,043	1,180,527	Betul
Bhind	4,459	1,214,480	Bhind
Bhopal	2,772	1,350,302	Bhopal
Bilaspur	19,897	3,796,553	Bilaspur
Chhatarpur	8,687	1,158,853	Chhatarpur
Chhindwara	11,815	1,563,332	Chhindwara
Damoh	7,306	897,544	Damoh
Datia	2,038	397,743	Datia
Dewas	7,020	1,032,522	Dewas
Dhaam	8,153	1,366,626	Dhaam
Durg	8,537	2,398,497	Durg
Khandwa	10,779	1,432,855	Khandwa
Guna	11,065	1,309,451	Guna
Gwalior	5,214	1,414,948	Gwalior
Indore	3,898	1,830,870	Indore
Hashangabad	10,037	1,265,970	Hashangabad
Jabalpur	10,160	2,645,232	Jabalpur
Jhabua	6,782	1,129,356	Jhabua
Mandla	12,269	1,291,313	Mandla
Mandsaur	9,791	1,555,481	Mandsaur
Morena	11,594	1,707,619	Morena
Narsinghpur	5,133	784,523	Narsinghpur
Panna	7,135	684,721	Panna
Raigarh	12,924	1,724,420	Raigarh
Raipur	21,258	3,902,609	Raipur
Raisen	8,466	877,369	Raisen
Rajgarh	6,154	992,315	Rajgarh
Rajnandgaon	11,127	1,439,524	Rajnandgaon
Ratlam	4,861	971,309	Ratlam
Rewa	6,134	1,550,140	Rewa
Sagar	10,252	1,646,198	Sagar
Satna	7,502	1,462,412	Satna
Sehore	6,578	840,427	Sehore
Seoni	8,758	999,762	Seoni
Shahdol	14,028	1,743,068	Shahdol
Shajapur	6,196	1,032,520	Shajapur
Shivpuri	10,278	1,131,933	Shivpuri
Sidhi	10,226	1,371,935	Sidhi
Ambikapur	22,337	2,082,930	Ambikapur
Tikamgarh	5,048	940,609	Tikamgarh
Ujjain	6,091	1,386,465	Ujjain
Vidisha	7,371	971,079	Vidisha
Khargaul	13,450	2,026,317	Khargaul

State of Economy: The economy of Madhya Pradesh is primarily agriculture-based. Nearly 80 per cent of the population live in villages. The cultivated area is 44.20m hectares of

Threat to ecology

Authorities are concerned about the threat to ecology in the Pachmarhi area, and the Madhya Pradesh government has asked the Centre to declare it an ecologically sensitive zone.

This hill-girded plateau in the Satpura range is threatened by soil erosion due to illicit felling of trees, unhindered grazing and indiscriminate mining.

The plateau of Satpura range on which Pachmarhi is situated (height: 1067 metres) is considered a botanist's paradise because of its ecological diversity and hill forests. Some unique vegetation is found in this area.

Hundreds of tourists reach Pachmarhi town every year. It is one of the leading tourist destinations in central India. The forests on the western and part of northern side come under the Satpura National Park, whereas the southern and eastern flanks form the Pachmarhi sanctuary.

Considerable damage has been caused to the forest and wild life of the area over the years by people removing fuel wood for their cooking needs, ignoring the ban on removal of forest produce. The situation is aggravated by another factor. The forests on the Pachmarhi plateau are getting degraded through arrested succession as the spread of *Lantana Camara* is leading to a continuous decimation of germ plasms of larger shrubs and trees.

The proposed zone of Pachmarhi is virtually representative of the complex forests of Madhya Pradesh. The Pachmarhi forests form a natural junction of two most important timber species - teak and sal.

This area also possesses a high mix of plant diversity. The meadows of Pachmarhi are still undisturbed by human activity. The national parks and sanctuaries in the area have considerable potential for supporting wildlife. Sambhars, cheetahs, barking deer, four-horned antelopes, bears, Rhesus monkeys and flying squirrels are found in the area.

which 28.6m hectares are irrigated. The Malwa region abounds in rich black cotton soil, the low lying areas of Gwalior, Bundelkhand, Baghelkhand and the Chhattisgarh plains have lighter soil, whereas the Narmada valley is formed of deep rich alluvial deposits. The main food crops are jowar, wheat and rice and coarse

grains such as kodo, kulki, soma, etc. Important among the commercial crops are oilseeds, cotton and sugarcane. The state is poised for a breakthrough in soyabean cultivation, production of which was 20.30 lakh tonnes in 1990-91.

M.P. is very rich in natural resources like iron ore, manganese ore, coal, limestone and tin. In all, 27 kinds of minerals are being mined in the state. The major industries are the steel plant at Bhilai, Bharat Heavy Electricals at Bhopal, the Aluminium Plant at Korba, the Security Paper Mills at Hoshangabad, the Bank Note Press at Dewas, the Newsprint Mill at Nepanagar and Alkaloid Factory at Neemuch, Cement Factories, Vehicle Factory, Ordnance factory and Guncarriage Factory. There are also 23 textile mills (7 are nationalized). Annual production of cement in 1.50 lakh tonnes.

The Bhilai Steel Plant near Durg is one of the six major steel mills in India. A power station at Korba (Bilaspur) with a capacity of 420 MW serves Bhilai, the Aluminium Plant and the Korba coalfields. Total installed capacity in 3813.7 MW.

The Bharat Heavy Electricals was set up by the Government of India at Bhopal during the Second Plan period. This is India's first heavy electrical equipment factory. It makes a variety of highly complicated equipments required for generation, transmission, distribution and utilization of electric power.

M.P. has entered the era of high-tech industries such as electricals, telecommunications, petrochemicals, food processing, motor vehicles etc. Pithampur near Indore is called the "Detroit of India".

A large number of agro-based industries have also come up. Solvent extraction plants based on soyabean have been established. Fourteen Industrial Growth Centres are being developed.

Total road length in the state is 94,000 km. There are 556 railway stations and 10 airports, of which five are major ones.

Universities (14): Awadesh Pratap University, Rewa; Barakatulla University, Bhopal; Devi Ahilya Vishwa Vidyalaya, Indore; Guru Ghasidas University, Bilaspur; Indira Kala Sangit Vishwa Vidyalaya, Khairagarh; J. Nehru Krishi Vishwa Vidyalaya, Jabalpur; Jiwaji University, Gwalior; Ravi Shankar University, Raipur; Rani Durgavati Vishwa Vidyalaya, Jabalpur; Vikram University, Ujjain, Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot. Dr. Hari Singh Gour University, Sagar, Indira Gandhi Agricultural University, Raipur, Maharshi Mahesh Yogi Vedic University, Karondi [in Jabalpur District].

MP also has 13 engineering and 6 medical colleges. In 1990-91, there were 66,849 primary schools, 13,977 middle schools, 1,695 high schools and 2,278 secondary schools.

Tourist Centres: Khajuraho, once the capi-

tal of Chandella rulers is 595 km from Delhi. The embodiment of the great artistic activity of the 9th to the 12th centuries. Only 22 temples out of 85 have survived. Ujjain, where Kumbh Mela is held every 12th year, Sanchi with ancient Buddhist monuments, Bhopal the lake-side capital city, Jabalpur famous for marble rock and Gwalior with beautiful forts, Indore, the largest city in the state, Panchmarhi, the station, Mandav, the historical town at Amarkantak, the source of the Son and Narmada rivers are among the other tourist attractions. Kanha National Park near Jabalpur is one of the most beautiful wild life sanctuaries in India. MP which has one-sixth of the world's tiger population, has been declared a 'Tiger State' to give protection to tigers. A Tiger Trust is to be formed in the state to make protection of tigers more effective. During '92-93, 8,051,356 tourists (61,469 foreigners) visited MP.

Governor: Mohammed Shafi Qureshi; **Chief Minister:** Digvijay Singh (Cong-I).

Maharashtra

Area: 307,690 sq km; **Capital:** Bombay; **Language:** Marathi; **Districts:** 31; **Population:** 78,706,719; **Males:** 40,652,056; **Females:** 38,054,663; **Increase (1981-91):** 15,922,548; **Growth Rate (per cent) 1981-91:** 25.36; **Density (persons per sq. km.):** 256; **Urban Population:** 38.69%; **Sex Ratio (males per 1000 females):** 936; **Literacy:** 63.7%; **Males:** 74.80; **Females:** 50.50; **Per capita income (89-90):** Rs. 6184. **1991 Census of India population total:** 78,937,187.

Maharashtra is the third largest state in India both in area and population. Only Uttar Pradesh and Bihar have larger populations and Madhya Pradesh and Rajasthan have larger areas than Maharashtra. The state is bounded by the Arabian Sea in the west, Gujarat in the north west, MP in the north, AP in the south east, Karnataka and Goa in the south.

In Sept.—Oct. 1993, Maharashtra hit the headlines when a devastating earthquake of unprecedented dimensions rocked the twin districts of Osmanabad and Latur on Sept. 30, killing more than 12,000 people and causing havoc to scores of villages, where thousands became homeless. After the calamity, one of India's worst natural disasters, massive relief and rehabilitation schemes were launched, with the entire country and a number of foreign countries contributing generously towards the rebuilding of the quake-hit areas. The Malayala Manorama group of publications is participating, along with other agencies, in reconstructing villages in Latur.

Physiography: The State of Mahara

ms a huge irregular triangle with its base on the west coast of India, overlooking the Arabian Sea. The coastal strip, about 720 km long and more than 80 km wide, is the Konkan, dotted with paddy fields and coconut gardens. The Sahyadris or the Western Ghats running almost parallel to the sea coast flank the Konkan on its east. To the east of the Sahyadris stretches a vast plateau forming the apex of the triangle. This plateau is drained by the great rivers Godavari, Bhima and Krishna, which rise in the Sahyadris and flow eastward across the Indian peninsula, into the Bay of Bengal. The plateau is extremely fertile and provides excellent crops of cotton, oil seeds and sugarcane. The rainfall in the state varies considerably, the areas west of the Sahyadris like the districts of Thane, Ratnagiri and Sindhudurg receive heavy rains with an annual average of 200 cm. The areas which lie in the rain-shadow of the Sahyadris, however, comprise the major portion

of the state area and get an average rainfall of around 60 to 75 cm annually and in some areas less than 50 cm. These areas include the districts of Nashik, Pune, Ahmednagar, Dhule, Jalgaon, Satara, Sangli, Solapur and parts of Kolhapur.

History: Historically, Maharashtra falls into three regions. Western Maharashtra, Vidarbha and Marathwada. Among these, Vidarbha has a hoary past and is mentioned many times in the Mahabharata. Maharashtra as a whole figures in history during the Mauryan period when it became part of the Mauryan Empire. After the fall of the Mauryas, Maharashtra was under the domination of a number of Hindu dynasties for nearly a thousand years. The Yadavas, the last of these dynasties ended in 1294. Thereafter the state came under a succession of Muslim rulers.

With the rise of Shivaji, Maharashtra entered a new phase in history. Shivaji welded the Marathas into a powerful nation. They became

Maharashtra



rulers instead of subjects. The Peshwas who succeeded Shivaji built up a Maratha Empire which extended from Gwalior in the north to Tanjore in the south. The Maratha power received a setback at Panipat, in 1761, when the Afghan ruler Ahmed Shah Abdali routed the Maratha forces. They recovered only to confront the British power and to be decisively defeated in 1818. After the defeat of 1818 Maharashtra settled down as part of the Bombay Presidency under the British administration.

Bombay tops in office rents

Office rents in Bombay are the highest in the world, according to a London based international property consultant firm, Richard Ellis.

In a study of world rentals, they have found that rents in Bombay soared as high as \$1,909 per square metre (about Rs. 60,000) per annum between December, 1994 and June, 1995.

Tokyo (inner central), Hong Kong, London (west end), London (city), Beijing, Shanghai and New Delhi in that order have the top six office rentals in the world following Bombay.

Total occupation costs in Tokyo are as high as \$1,866 per square metre per annum. They are \$1,470 for Hong Kong, \$1,212 for London, \$1,032 for Beijing, \$939 for Shanghai and \$923 for New Delhi, the firm says.

Interestingly, top rents have remained unchanged in London, Frankfurt and New York over the six months. In Tokyo, Hong Kong and Paris, office rents have fallen.

The emerging markets of Asia and the Far East continue to experience significant rental growth. Rents have increased in Bombay, Beijing, Shanghai, New Delhi and Hanoi since the beginning of 1993. What is reflected in the higher office rents is the extraordinary economic activity in Asia. Global companies are setting up offices in cities of Asia and the Far East.

The *Wall Street Journal*, which reported in April, 1995 that Bombay had become the world capital for high rents, said the free market economic reforms had made India one of world's more attractive emerging markets. It added that the arcane laws aimed at protecting tenants and discouraging underground property transactions had made rents high. Foreign companies were often hesitating to open offices in India because of the exorbitant office rents.

In independent India, Bombay continued one state consisting of Maharashtra and Gujarat. This was an experiment in bilingualism. It is, one state comprising two linguistic units. The experiment did not work. Under the Bombay Re-organization Act, 1960 Maharashtra and Gujarat were formed into separate states on May 1, 1960, Maharashtra retaining the capital Bombay.

Administration: Legislature. The state has a bicameral legislature, the Legislative Assembly (Vidhan Sabha) and the Legislative Council (Vidhan Parishad). The state is divided into districts.

Districts

District	Population	Area	Headquarters
	1991 (in lakhs)	sq km	
Greater Bombay	9,908.547	603	Bombay
Bombay Suburban	—	400	Bandra
Thane	5,224.679	9,558	Thane
Raigarh	1,818.130	7,148	Ahmednagar
Ratnagiri	1,539.416	8,249	Ratnagiri
Sindhudurg	830.726	5,219	Kolhapur
Nashik	3,837.597	15,530	Nashik
Dhule	2,529.346	13,150	Dhule
Jalgaon	3,184.688	11,765	Jalgaon
Ahmednagar	3,362.359	17,048	Ahmednagar
Pune	5,494.336	15,642	Pune
Satara	2,444.857	10,484	Satara
Sangli	2,197.977	8,572	Sangli
Solapur	3,224.034	14,874	Solapur
Kolhapur	2,974.352	7,633	Kolhapur
Aurangabad	2,209.052	9,172	Aurangabad
Jalna	1,364.718	8,656	Jalna
Parbhani	2,113.168	11,038	Parbhani
Bid	1,818.499	10,624	Bid
Nanded	2,314.783	10,502	Nanded
Osmanabad	1,271.840	7,510	Osmanabad
Latur	1,672.482	7,304	Latur
Buldana	1,881.438	9,661	Buldana
Akola	2,211.016	10,575	Akola
Amaravati	2,206.562	12,212	Amaravati
Yavatmal	2,073.708	13,584	Yavatmal
Wardha	1,065.589	6,310	Wardha
Nagpur	3,274.974	9,931	Nagpur
Bhandara	2,103.276	9,213	Bhandara
Chandrapur	1,768.945	10,490	Chandrapur
Gadchiroli	785.626	15,433	Gadchiroli

The new Bombay Suburban district comprising Andheri and Borivile came into being in October 1990. However, no separate population figure has been given by the census report of 1991.

State of Economy: About 70 per cent of the people in Maharashtra depend on agriculture. About 12.22 per cent of the total cultivated area is irrigated. The principal food crops are

rice, jowar, bajra and pulses. Important cash crops are cotton, sugarcane, groundnut and tobacco. Although the state accounts for 9.2 per cent of the total population of the country, it shares about 11 per cent of industrial units, over 17 per cent of labour, about 16 per cent of investment and 23 per cent of the value of industrial output.

The industry groups contributing substantially to Maharashtra's industrial production are chemicals and chemical products, textiles, electrical and non-electrical machinery and petroleum and allied products. Other important industries are pharmaceuticals, engineering goods, machine tools, steel and iron castings and plasticware. It also leads in sophisticated electronics equipment. Santa Cruz Electronics Export Processing Zone (SEEPZ), is a free trade zone for cent per cent export.

The development of offshore oil fields at Bombay High and the nearby Bassein North Oil Fields have contributed greatly for the industrial development of the state.

On September 25, 1995, the CM flagged off the 'Konkan Queen' to inaugurate the 52 km. Khed-Veer section of Konkan Railway at Khed.

Bombay houses the headquarters of almost all major banks, financial institutions, insurance companies, and mutual funds. Bombay has the largest stock exchange in the country. Bombay contributes 10% of factory employment, 33% of income tax, 60% of the customs duties, 20% of central excise and 40% of India's foreign trade.

Bombay is India's biggest harbour. It receives 50% of international passengers. Bombay is the Hollywood of India as far as film production is concerned. New growth centres are coming up at Nashik, Aurangabad, Nagpur, Jalgaon.

Ganesh Chaturthi is the main festival of the state. Maharashtra Government has proposed to rename Bombay as Mumbai.

Universities: Amravati University, Amravati; Indian Institute of Technology, Powai, Bombay; International Inst. for Population Sciences, Deonar, Bombay; Konkan Krishi Vidyapith, Dapoli; Mahatma Phule Krishi Vidyapith, Rahuri; Dr. Babasaheb Ambedkar Marathwada University, Aurangabad; Nagpur University, Nagpur; Punjab Rao Krishi Vidyapith, Akola; Shivaji University, Kolhapur; SNDT Women's University, Bombay; Tata Inst. of Social Sciences, Sion, Bombay; Central Inst. of Fisheries Edn., Bombay; North Maharashtra University, Jalgaon; Y. B. Chavan Open University, Nashik; Deccan College of Post graduate and Research Institute, Pune. The Gokhale Institute of Politics and Economics, Pune is a deemed university. A Sanskrit University named after Kulguru Kalidas at Nagpur has been approved. Swami Ramananda Teerth University is to be set up at Nanded.

Tourist Centres: Some of the important tourist centres are the Caves Ajanta, Ellora, Elephanta, Kanheri and Karala; Hill stations: Mahabaleshwar, Matheran and Panchagani; Religious places: Pandharpur, Nashik, Shirdi, Aundhanagnath, Nanded and Ganapatipule.

Governor: Dr. P.C. Alexander; **Chief Minister:** Manohar Joshi (Shiv Sena).

Manipur

Area: 22,327 sq km; **Capital:** Imphal; **Language:** Manipuri; **Districts:** 8; **Population:** 1,826,714; **Males:** 913,511; **Females:** 895,203; **Increase (1981-91):** 405,761; **Growth Rate 1981-91:** 28.56; **Density (persons per sq. km.):** 82; **Urban Population:** 27.52%; **Sex Ratio (females per 1000 males):** 961; **Literacy:** 60.96%; **Males:** 72.98; **Females:** 48.64; **Per capita income (1989-90):** Rs. 3502. **1991 Census final population total:** 1,837,119.

Manipur had been a Union Territory from 1956 and a full-fledged state from 1972. Manipuri was recognised as a national language in 1992.

Manipur is bounded by Nagaland in the north, Mizoram in the south, Upper Burma in the east and Cachar district of Assam in the west.

History: Manipur has a varied and proud history from the earliest times. It came under



British rule as a princely state in 1891. The Manipur Constitution Act, 1947, established a democratic form of government with the Maharajah as the Executive Head and a legislature constituted by election on adult franchise. The Legislative Assembly so constituted functioned till it was dissolved on the integration of the state with the Dominion of India in October, 1949.

Then it was governed as if it were a Chief Commissioner's Province and then as a Part C State under the Indian Constitution with effect from 26-1-1950. In 1950-51 an advisory form of popular government was introduced and in 1957 this was replaced by a Territorial Council of 30 elected and 2 nominated members. In 1963, a legislative assembly of 30 elected and 3 nominated members was established.

The status of the Administrator was raised from that of a Chief Commissioner to that of a Lieutenant Governor in December, 1969. Manipur achieved full statehood on January 21, 1972.

Manipur has been the scene of bitter ethnic conflict in recent times. The ethnic animosity between the Kukis and the Nagas stems from xenophobic insecurity. Of the 18 lakh population, Kukis number 2.5 lakh, and Nagas 4 lakhs. Hundreds have been killed, more injured, houses burnt down and thousands rendered homeless, in the conflicts in the past two years.

Administration: Manipur was reorganized into 8 districts in 1983. The district headquarters bear the same names as the districts.

Districts

District	area (sq.km.)	Population 1991
Imphal	1201	707,184
Bishnupur	530	179,903
Thoubal	507	290,393
Ukhrul	4,544	109,952
Senapati	3,271	206,933
Tamenglong	4,391	85,572
Churachandpur	4,570	176,043
Chandel	3,313	70,734

State of Economy: The main crop of the state is paddy. Maize is cultivated in the foot hills. Out of the area of 22,327 sq km, the area available for cultivation is about 2.1 lakh hectares only. The area under paddy is 1.86 lakh hectares out of which 1.10 lakh hectares is in the valley. About 70% of the valley has been brought under high yielding rice.

The state has made significant advance in the field of agriculture. Per hectare consumption of fertiliser reached 90 kg during 1992-93. More than 70% of the high yielding varieties of paddy

are locally bred, punshi, phouoibi and KD ries.

Handloom is the biggest industry in Manipur. There are 3 lakh spindles and at least 3 lakh persons are employed in the field. The Manipur Spinning Mill, launched in 1974 has grown to use 16,416 spindles. The Khandsari Sugar Factory at Khangabok is working on a small stream. A TV assembly unit and a cycle assembly unit are working in full swing. A Mechanical Dye House was commissioned in 1987. There are 5970 small scale industrial units in the state with almost 23,800 workers.

Sericulture: Manipur is the first to introduce the Oak Tasar Industry. In the hill area there are 1000 Tasar Farms. 1500 Tribal families (or 15,000 members) produce about 30 million Tasar cocoons valued Rs. 3.00 million. Apart from them, over 100 Scheduled Caste families in the valley practise Mulberry rearing in traditional way, producing 45,000 kg of raw silk annually. Reeling and spinning and utilise the same in an exquisite handloom industry.

Universities: Manipur University, Imphal. The first Central Agricultural University is being set up at Imphal.

The campuses will be at Manipur (college of agriculture), Mizoram (college of veterinary science), Tripura (college of fisheries), Arunachal Pradesh (college of horticulture and forestry), Meghalaya (college of home science), Sikkim (college of agricultural engineering and harvest technology) and college of postgraduate studies at Barapani in Meghalaya.

Tourist Centres: Called a Jewel of India, Jawaharlal Nehru, Manipur lies in the shadow of hills. The picturesque Manipur valley dotted with gleaming lakes is famous for a variety of orchids. Manipuri dance is world famous. Also her exquisite handicrafts.

The important tourist centres in the state are Imphal, the capital and centre of all cultural and commercial activities adorned with two cemeteries maintained by the Commonwealth War Graves Commission, Govindajee Temple, Women bazaar, etc. Besides, the Bishnu Temple at Bishnupur built in 1467 A.D., the Loktak Lake, the biggest fresh water lake in eastern India, Keibul Lamjao, the only floating national park in the world, the Orchid Yard at Khongampat are also quite attractive.

Accommodation facilities at important tourist centres such as Waichou, Kaina, Phubala, Senapati and Tourist Lodge at Imphal are remarkable. Transport facilities are provided with District and Mini Buses and Taxi services at most of the places.

Governor: O.N. Srivastava (Additional Charge); **Chief Minister:** Rishang Keishing (Cong-I).

Meghalaya

Area: 22,429 sq km; **Capital:** Shillong; **Languages:** Khasi, Garo and English. **Districts:** Population 1,760,626. **Males:** 904,308. **Females:** 856,318; **Increase in (1981-90):** 424,810; **Growth Rate (per cent) 1981-90:** 31.80; **Density (persons per sq. km.):** 78.50; **Urban Population 18.60%; Sex Ratio (females per 1000 males):** 947. **Literacy:** 48.26%. **Males:** 51.57; **Females:** 44.78; **Per capita income (89-90):** Rs 3250. **1991 Census final population total:** 1,774,778.

Meghalaya, literally the abode of the clouds (Megha=clouds, Alaya=abode), was inaugurated as an autonomous state on April 2, 1970. It was declared a state of the Indian Union on January 21, 1972.

Physiography: The exclusive tribal State of the Khasis, the Jaintias and the Garos is a mountain region. Shillong, the capital of Meghalaya, is situated in the centre of a high plateau. It has been called 'the Scotland of the East' because of its elevation (1496m above the sea level). The highest peak in the state is the Diphlu Peak 1965 m in height. Nokrek in the Jaintia Hills district is the next highest peak. A number of rivers, none of them navigable,

drain this mountainous area. Manda, Damring, Janjiram, Ringee, Ganol, Bugi and Simsang flow through the Garo Hills District Kynshi, Khri, Umtrew, Umngot, Umiam Mawphlang and Umiam Khwan flow through Khasi Hills district and Kupli, Myntdu & Myntang flow through Jaintia Hills district.

Administration: Meghalaya is a constituent state of the North Eastern Council. The state has a unicameral legislature. The Legislative Assembly consists of 60 members — 29 from Khasi Hills, 7 from Jaintia Hills and 24 from Garo Hills.

The state is divided into 7 districts.

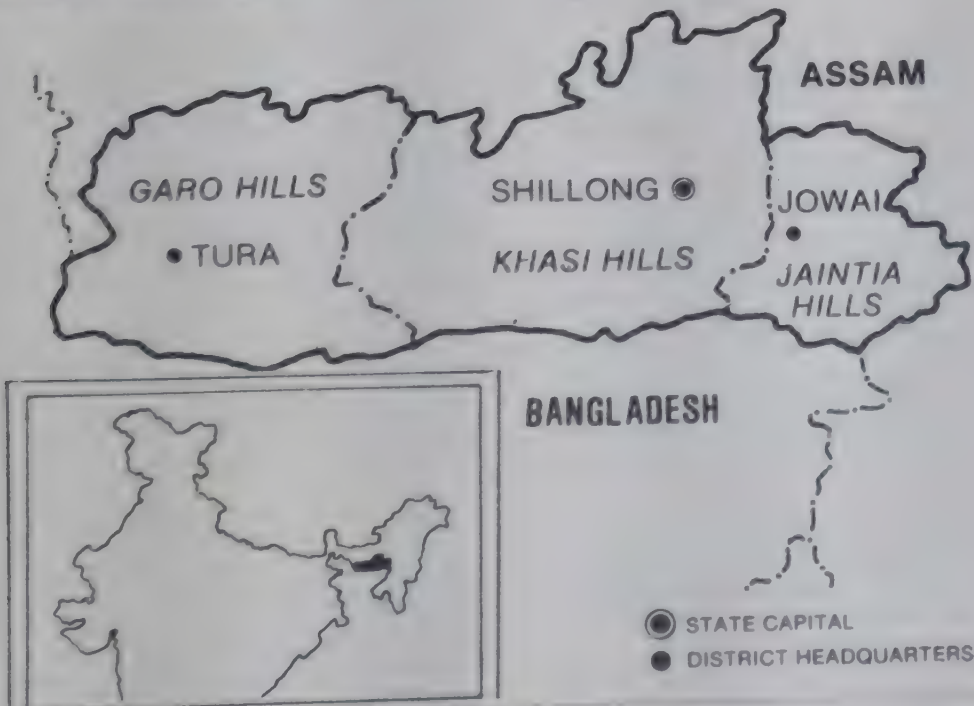
Districts

District	Area (sq km)	Population '91	Headquarters
East Khasi Hills	5,196	657,160	Shillong
West Khasi Hills	5,247	217,462	Nongstoin
East Garo Hills	2,603	189,043	Williamnagar
West Garo Hills	5,564	477,775	Tura
Jaintia Hills	3,819	219,186	Jowai
Ri-Bhoi*	--	--	Nongpoh
South Garo Hills*	--	--	Baghmara

* created in June 1992.

State of Economy: The majority of the people depend on land for their livelihood. But

Meghalaya



World's Wettest Spot

Researchers at the Indian Meteorological Department (IMD) have published new data showing that Mawsynram, a station 16 km west of Cherrapunji, receives an average annual rainfall that exceeds rainfall in both Hawaiian Island of Waialeale and Cherrapunji.

If all available rainfall records are considered, the mean annual rainfall in Mawsynram is 11,873 mm, according to the 1992 issue of the IMD journal *Mausam*. The corresponding figures for Waialeale is 11,438 mm and Cherrapunji 11,314 mm.

Mawsynram, located on the crest of the southern range of the Khasi hills in Meghalaya, receives most of its rain during the southwest season. It rains there about 147 days in a year.

Mawsynram also holds the highest 24-hour rainfall record in India. It received 989.6 mm of rain on July 10, 1952, scientists, Dr. S.M. Kulshreshtha and Mr. V. Thapliyal, wrote.

Cherrapunji still held several other rainfall records like the highest 12-month, six-month and one-month rainfall.

the potential for agricultural expansion is very limited in Meghalaya due to the terrain. Jhumming or shifting cultivation, practised in the state on a large scale, is one of the biggest problems to be tackled in Meghalaya. This traditional practice is deeply rooted among the hill people.

However, the state government has made a modest beginning with a scheme to help the farmers to settle on lands which are suitable for steady cultivation. The state's Soil Conservation Department's resettlement scheme called Jhum Control Scheme envisages allotment of improved land to villagers together with supply of fertilizers, seeds, irrigation facilities, etc. The developed lands would also be linked with roads for marketing the produce. At present, the villages in selected areas with a minimum of 50 families are growing crops by modern methods.

The state is not so far industrially developed. However, new industrial units set up by or with the help of the Meghalaya Industrial Development Corporation are fast coming up. Some of them are:

The Meghalaya Plywood Ltd., The Associated Beverages (P) Ltd., The Meghalaya Essential Oils and Chemicals Ltd., The Meghalaya Phyto-Chemicals Ltd, The Komorah Limestone Mining Co. Ltd., The Meghalaya Towers and Trusses Ltd. and the Umiam Calceates Ltd.

The public sector cement factory at Cherrapunjee known as the Mawmluh-Cherra Cement

Ltd., which was producing 250 tonnes of cement daily, has been expanded to a production capacity of 930 tonnes per day.

Universities: NEHU—North Eastern Hill University, Shillong.

Tourist Centres: Meghalaya is a Dream-come-true for the tourist. The charms of this land are many-splendoured and unique. It is a happy land of magnificent beauty, undulating hills, rolling grasslands, cascading water-falls, snaking rivers, terraced slopes and thrilling wild life.

Some of the important tourist spots are: (1) Umiam Lake by the side of the Shillong—Guwahati road provides a very fascinating view. Fishing is a great sport over here. (2) Kyllang Rock, about 55 kilometres west of Shillong, is an interesting tourist spot. Rising out of the rolling grassy downs, it is an imposing dome of granite more than 700 feet in height. (3) Nohsngthiang falls at Mawsmi near Cherrapunjee, overlooking the hazy blue plains of Bangladesh, has an appeal unparalleled in the whole of India. And the Mawsmi caves are full of wonders to the eyes. (4) Nartiang, about 90 kilometres from Shillong, has a number of monoliths, the tallest being 27 feet high and 2½ foot thick erected by the villagers of Nartiang between 1500 and 1835 A.D.

Governor: M.M. Jacob; **Chief Minister:** Salseng C. Marak (Congress-I).

Mizoram

Area: 21,081 sq km; **Capital:** Aizawl; **Languages:** Mizo and English; **Districts:** 3; **Population:** 686,217; **Males:** 356,672; **Females:** 329,545; **Increase in (1981-91):** 192,460; **Growth Rate (per cent) 1981-91:** 38.98; **Density (persons per sq. km.):** 33; **Urban Population:** 46.10%; **Sex Ratio (female per 1000 males):** 924; **Literacy:** 82.27%; **Males:** 85.61; **Females:** 78.60; **Per capita income (91-92):** Rs. 5,910. **1991 Census figures:** population total: 689,756.

Mizoram, in the local language, means the land of Mizos. Mizo itself means highlander. Under the British administration, Mizoram was known as Lushai Hills District. In 1954 by an Act of Parliament the name was changed to Mizoram Hills District. In 1972, when it was made into a Union Territory, it was named Mizoram.

With the signing of the Peace Accord between the Union government and the MNF and consequent upon the passing of the 53rd Constitutional Amendment Bill, Mizoram became the 23rd State of the Indian Union on 20-2-1987.

Physiography: Mizoram occupies the north-east corner of India. It is bounded on the north by the District of Cachar (Assam) and the State

of Manipur, on the east and south by Chin Hills and Arakan (Burma), on the west by the Chittagong hill tracts of Bangladesh and the State of Tripura.

Mizoram is a land of hills. The hills run in ridges from north to south. They have an average height of 900 metres, the highest point being the Blue Mountain in the south which rises to a height of 2165 metres. The hills are steep and cut apart by rivers which have created deep gorges. The terrain, on the whole, is mountainous except for low depressions amid hills, where wet cultivation is practised.

The most important and useful rivers are the Tlawng (or the Dhaleswari), the Sonai and the Tuivawl, which drain the northern area of the territory and eventually join the Barak. The southern area is watered by the Kolodine and its tributaries and the western area by the Karnaphuli with its tributaries. Chittagong in Bangladesh is situated at the mouth of this river.

History: The Mizos belong to the Mongolian race. They seem to have settled at first in the Shan State of Burma. The tribes left Burma and moved westwards into India. They occupied the Lushai Hills.

During the British administration, the Mizos raided British territories and even attacked fortified positions. The British army moved against the Mizos and occupied their territory. It was annexed to British India in 1891. In 1898, the entire Mizo territory was formed into the Lushai Hills District and made a part of Assam. Although the Mizos were subjugated, the British did not interfere with their village administration. The Mizo Chiefs carried on the day-to-day administration in the traditional manner.

With independence, Mizoram became a district of Assam. Because of neglect by the authorities, the Mizos started agitations in 1966. It was declared a disturbed area. Armed Forces (Special Powers) Act also was invoked. On June 30, 1986, the historic Mizoram Peace Accord was signed between the Government of India and the Mizo National Front ending the two-decade old insurgency.

The Mizos are divided into various tribes — the Lushais, Pawis, Paithes, Raltes, Pang, Hmars, Kukis, Maras, Lakhers, etc. In the 19th century the Mizos came under the influence of British missionaries and many Mizos were converted to Christianity.

The Mizo language had no script of its own. The missionaries introduced the Roman script for the Mizo language and started teaching English also. The cumulative result was a high percentage of literacy. The majority of the tribes are Christians and speak Mizo and English. But some tribes on the border like the Chakmas are Buddhists and speak Chakma language.

Universities: NEHU—North Eastern Hill University — has a campus in Aizawl.

Administration: Mizoram has a single-chamber legislature consisting of 40 members. The territory has three Districts, 9 Sub-Divisions, 3 autonomous Hill District Councils, 23 Towns, 31 Police Stations and 681 Village Councils (instead of Gram Panchayats).

Districts

District	Area (sq km)	Population (1991)	Head-quarters
Aizal	12,589	475,360	Aizawl
Lunglei	4,536	111,209	Lunglei
Chhimtuipui	3,957	99,648	Chhimtuipui
Total	21,081	686,217	



State of Economy: Agriculture is practically the only occupation in Mizoram. The territory is famous for its fibreless ginger, although other cash crops like mustard, sesame and potatoes are also grown. However, the cultivation method — jhum — is very primitive and destructive. The Mizoram Government is now trying to induce the peasants to change over to more permanent systems of cultivation like terraced farming on the hill sides. There are also schemes to grow plantation crops like rubber, coffee, tea, etc.

Paddy is the chief food crop, followed by maize. They are grown on the slopes of hills. Total area under rice in 1993-94 was 62,452 ha. One of the chief constraints in increasing agricultural production is the lack of irrigational facilities. Only 2885.30 ha is irrigated in Mizoram.

'The State of the Forest' report 1991 said that Mizoram leads the states in afforestation. Total forest area is 15,935 sq km.

There is no major industry in Mizoram. Handloom and handicraft are the major industrial activities in the territory and one Engineering Unit has developed a new design of machine-combined ginning and carding.

Tailoring, knitting and embroidery centres have been set up. Sericulture in four kinds of silk—Mulberry, Eri, Tasar and Muga—is practised widely.

Other industries are: Ginger beverages, oil, fruits preservation, handloom and some other small scale & cottage industries like bakery, printing press, saw mills, brick making, soap making, etc.

Tourist Centres: Known as the land of enchanting hills, Mizoram is famous for its vast expanse of jagged mountain ranges shrouded mystically in reddish-blue haze. Blue mountains and deep narrow valleys with swift-flowing rivers, forests with an array of flora and fauna, quaint relics of a glorious past, quiet hamlets and bustling towns make Mizoram a tourist's choice.

Governor: Paty Ripple Kyndiah; **Chief Minister:** Pu Lalthanhawla (Cong-I).

Nagaland

Area: 16,579 sq km; **Capital:** Kohima; **Languages:** English, Ao, Konyak, Angami, Seema and Lotha; **Districts:** 7; **Population:** 1,215,573; **Males:** 643,273; **Females:** 572,300; **Increase in (1981-91):** 440,643; **Growth Rate (per cent) 1981-91:** 56.86; **Density (persons per sq. km.):** 73; **Urban Population:** 17.21%; **Sex Ratio (females per 1000 males):** 890; **Literacy:** 61.30%; **Males:** 66.09; **Females:** 55.72; **Per capita income (88-89):** Rs. 3464. **1991 Census final population total:** 1,209,546.

Physiography: The State of Nagaland is a narrow strip of mountainous territory between the Brahmaputra Valley of Assam and Myanmar (Burma). On the east it shares India's international boundary with Burma. On all other sides it is bounded by Indian territory — Manipur on the south, Assam on the west and north, and Arunachal Pradesh on the north east.

Saramati, the highest peak, is 3841 m high and Kohima, the capital, is 1444.12 m above sea level. The main rivers that flow through the state are Dhansiri, Doyang, Dikhu and Jhanji.

The population of Nagaland is entirely tribal. There are many separate tribes and sub-tribes among the Nagas with their own distinctive languages and cultural features. Kohima district is the home of the Angamis, Zeliangs, Rengmas, Kukis, Semas and other minor groups. Mokokchung is the home of Aos, Wokha district

Nagaland



the Lothas and Zunheboto district of the Naga Hills. Tuensang district is the home of the Naga, the Sangtam, the Khemnungan, the Mokokchung, the Phom and other minor groups. Zunheboto district is the home of the Konyaks. It is the people who chiefly practise Jhum cultivation.

History: The Nagaland State comprises the Naga Hills district of Assam and the Naga Frontier division of the North Frontier.

These had been made a Centrally Administered Area in 1957, administered by the President through the Governor of Assam. In January 1961 the Government of India conferred the status of a State on Nagaland. The State of Nagaland was officially inaugurated on Dec. 1963.

Administration: The State has a unicameral legislature — the Legislative Assembly.

Districts

District	Area (sq km)	Population (1991)	Headquarters
Kohima	4041	394,179	Kohima
Phek	2026	101,823	Phek
Mokokchung	1615	156,207	Mokokchung
Zunheboto	1255	97,933	Zunheboto
Wokha	1628	82,394	Wokha
Tuensang	4228	232,972	Tuensang
Mon	1786	150,065	Mon
Total	16579	1,215,573	

Originally the state was divided into 3 districts. In Dec. 1973, the districts were reconstituted as above.

State of Economy: Agriculture is the main occupation of 90% of the population. Rice is the important food crop grown.

Although agriculture is the mainstay of the state, only a little more than one-third of the total area is cultivable. Considering the hilly terrain, this is not unusual but the main drawback is that cultivation is vitiated by what is called jhumming. Under this system, forest lands are cut down and burnt and crops are planted in the burnt out lands. After a crop or two, these lands are abandoned and fresh forests are cut down and burnt. This leads to soil erosion and permanent loss of fertility of the soil.

But now the Govt. is encouraging terraced cultivation, farm forestry, orchard plantation, cash crop plantation and contour bunding so as to discourage jhum cultivation which leads to soil erosion as well as loss of fertility. These

programmes are positively accepted by the people. The area under jhum cultivation is 87,339 hectares and under terraced cultivation 62,091 hectares.

Nagans have an artistic sense in many crafts. They carve beautiful designs with their simple equipments like dao. They use home-made colours and pieces of bamboo to make beautiful decorative materials.

Nagaland has achieved remarkable progress in small and medium industries. Big industries are being planned although at present there is only one sugar mill, one pulp and paper mill and one plywood factory. One cement factory is also coming up. Other major industries are sericulture and bee keeping. There are 1850 small scale industrial units. Among the new industries are plastic moulding, hume pipes, polythene bags and rubber chappals.

Total road length is 9,315 km. Dimapur is the only place where rail and air services are available.

University: NEHU—North Eastern Hill University—has campus in Kohima. An Act has been enacted to set up *Nagaland Central University* at Lumamii. It will start functioning from Medziphema, 50 km from Kohima following a formal notification.

Tourist Centres: This remote hilly area is covered with luxuriant vegetation, the climate is cool and bracing, the people friendly and hospitable. In season, the landscape is a riot of colour—wild flowers, thick forests, huge trees, tall grass, a wide variety of wild animals and brilliantly coloured birds.

Governor: O.N. Srivastava. **Chief Minister:** S. C. Jamir (Cong. I).

Orissa

Area: 155,707 sq km; **Capital:** Bhubaneswar; **Language:** Oriya; **Districts:** 27; **Population:** 31,512,070; **Males:** 15,979,904; **Females:** 15,532,166; **Increase in (1981-91):** 5,141,799; **Growth Rate (per cent) 1981-91:** 19.50; **Density (persons per sq.km.):** 202; **Urban Population:** 13.38%; **Sex Ratio (females per 1000 males):** 972; **Literacy:** 48.65%; **Males:** 62.37; **Females:** 34.40; **Per capita income (89-90):** Rs. 3066. **1991 Census final population total:** 31,659,736.

Physiography: Orissa lies on the east coast of India. It is surrounded by West Bengal on the north-east, Bihar on the north, Andhra Pradesh on the south-east, Madhya Pradesh on the west and Bay of Bengal on the east. The whole state lies in the tropical zone and is divided into four distinct tracts, viz. the northern plateau, the eastern ghats, the central tract and the

Orissa



coastal plains. The state is drained by three great rivers, the Mahanadi, the Brahmani and the Baitarani and some lesser rivers, all of which flow into the Bay of Bengal.

The biggest and the most famous lake in Orissa is the Chilka lake. Originally, it was part of the Bay of Bengal, but was subsequently closed up by sand dunes. It is 64 km long and 16 to 20 km wide. There are two beautiful islands in the lake namely Parikud and Malud. Two other lakes call for mention, the Ansupa Lake (Cuttack District), about 5 km long and 1.6 km broad, and the Sara Lake, (Puri District) about 5 km long and 3 km wide.

Orissa has an equable climate, neither too hot nor too cold. In some places, however, extremes of climate are experienced, namely, in the western districts like Bolangir, Sambalpur and Sundargarh. The average rainfall in the state is 150 cm. There is no desert or semi-desert area in the state.

History: Orissa, the land of the Oriyas, was known as Kalinga in the ancient days. In the third century B.C. (268 B.C.) Ashoka, the Mauryan

emperor, sent a powerful force to conquer Kalinga which offered stiff resistance. Kalinga was subdued but the carnage which followed struck Ashoka with remorse. It is here, where Ashoka the Terrible was transformed to Ashoka the Compassionate. After the death of Ashoka, Kalinga regained its independence. In the second century B.C. Kalinga became a powerful country under its ruler Kharavela. With the death of Kharavela, Orissa passed into obscurity. In the 4th century A.D. Samudragupta set out on his conquest of the south from Magadha. In A.D. 610, Orissa came under the sway of King Sasanka. After

Sasanka's death Harsha conquered Orissa. The country had its own independent dynasty of rulers (the Ganga dynasty) in the 7th century A.D. In A.D. 795 Mahasivagupta Yayati the Second came to the throne and with him began the most brilliant epoch in the history of Orissa. He united Kalinga, Kengoda, Utkala and Kosala in the imperial tradition of Kharavela. He is believed to have built the famous Jagannatha Temple at Puri. Under the kings of the Ganga dynasty

sa continued to flourish. Narasingha Dev of dynasty is reputed to have built the unique temple of the Sun at Konarak.

From the 14th century, Orissa was ruled by successive Muslim Kings till 1592 when Akbar annexed it to the Mughal Empire. With the decline of the Mughals, the Marathas occupied Orissa. They continued to hold it till the British took over in 1803.

Orissa was made into a separate province in 1912. With independence, the Princely states in and around Orissa, surrendered their sovereignty to the Government of India. By the States Reorganisation (Governor's Provinces) Order 1949, the Princely States of Orissa were completely merged into the State of Orissa on 19th August, 1949.

Administration: The legislature is unicameral, the Legislative Assembly consisting of 100 members.

The state is divided into 3 revenue divisions, Central, Northern and Southern and 27 districts. (Until 1992 there were only 13 districts).

Districts

District	Area sq km	Population '91	Headquarters
Bhubaneswar	10,410	1,871,797	Baripada
Balasore	3,706	1,692,439	Balasore
Bhadrak	2,788	1,103,889	Bhadrak
Bolangir	8,337	1,315,627	Keonjhar
Boudh	2,885	1,380,203	Panikoli
Boudh	2,546	1,146,470	Kendrapara
Boudh	1,759	933,296	Jagatsinghpur
Cuttack	3,915	2,043,338	Cuttack
Dhenkanal	4,597	942,672	Dhenkanal
Angul	6,347	958,003	Angul
Phulbani*	8,910	858,553	Phulbani
Mayurgarh	3,954	776,784	Mayurgarh
Bhubaneswar	2,888	1,497,846	Bhubaneswar
Puri	3,055	1,295,562	Puri
Chhatrapur	8,033	1,684,379	Chhatrapur
Parulakhemudi	3,056	458,741	Parulakhemudi
Rayaguda	7,585	714,599	Rayaguda
Koraput	8,534	1,055,824	Koraput
Malkangiri	6,115	420,950	Malkangiri
Nabarangpur	5,135	808,215	Nabarangpur
Bhavanipatna	8,197	1,128,659	Bhavanipatna
Nuapada	3,408	463,325	Nuapada
Balangir	6,552	1,227,345	Balangir
Sonpur	2,284	476,410	Sonpur
Sundargarh	9,942	1,568,442	Sundargarh
Barugarh	5,832	1,203,630	Barugarh
Sambalpur	11,689	1,484,765	Sambalpur
Total	155,707	31,512,070	

Three new districts were announced on 12th May, 1993. They are Tharsuguda, Deogada and

Boudh, the first two to be carved out of Sambalpur District, while the third will be from the tribal-dominated Kandhamal (Phulbani) district.

Orissa has a high percentage of Scheduled Castes and Tribes which together make 9.78 million out of a total of 26.37 million people. The High Court is located at Cuttack.

State of Economy: Orissa's agro-based economy is always upset by some natural calamities like flood, drought, tornado or cyclone. Flood and drought are common to many states but only a few states are subject to cyclones and tornado. Orissa is one of the few. Cyclone has in recent years become a regular feature like flood or drought. In 1980 an unprecedented flood caused wide damage.

Over 76% of the people are dependent on agriculture. Out of the gross cropped area of 87.46 lakh hectares, 18.79 lakh hectares are irrigated. Rice, pulses, oil-seeds, jute, mesta, sugarcane, coconut and turmeric are important crops. The state contributes one-tenth of the rice production in India. Foodgrain production in '91-92 was 83.59 lakh tonnes. Forests cover nearly 37% of the total area of the state.

The Central Sector Projects are: Steel Plant at Rourkela, SAD Complex at Chhatrapur, Heavy Water Project at Talcher, Coach Repairing Workshop at Mancheswar, Aluminium Complex at Koraput, Captive Power plant at Talcher, Aluminium Smelter at Talcher and Fertilizer Plant at Paradeep.

Universities: Berhampur University, Berhampur; Orissa University of Agri. & Tech.; Bhubaneswar; Sambalpur University, Sambalpur; Sri Jagannath Sanskrit Vishwa Vidyalaya, Puri; Utkal University, Bhubaneswar.

Tourist Centres: Bhubaneswar, the present capital of Orissa is known as the cathedral city of India on account of its numerous temples. A complete study of the Kalinga Style of architecture from its every inception to maturity spread over a period of about two thousand years is epitomised in the monuments of Bhubaneswar. Places of interest are: Lingaraja Temple, Mukheswar Temple, Ananta Basudeva Temple and Rajarani Temple, the Jain and Buddhist rock-cut caves of Khandagiri, Udayagiri and Dhauri together with Ashoka's rock edict.

Odissi, the dance form of Orissa evolved in the shadow of the magnificent temples of the state.

Bhubaneswar is connected to Calcutta, Vizag and New Delhi by air. Also there are express trains to Delhi, Calcutta, Madras and Secunderabad and buses to Calcutta, Vizag, Raipur, Ranchi and Tatanagar.

Puri (Jagannath Puri) is a coastal town and beach-resort in Orissa. It is 62 km from Bhu-

baneswar and is one of the four dharmas (holy places of pilgrimage) in India the three others being Badri-Kedarnath in the north, Rameswaram in the south and Dwarka in the west. The presiding deities in the temple are Jagannath Balabhadra and Subhadra. Every year, in June-July (Asadha Sukla Dwitiya), thousands of devotees from all over India and abroad arrive at Puri to participate in the Car-Festival.

Konark is about 65 km from Bhubaneswar and 85 km from Puri. It is famous for the great temple of the Sun-God, conceived as a giant celestial chariot with twenty-four exquisitely carved wheels, drawn by seven impetuous horses. The temple is profusely sculptured with exquisite figures and figurines, fixed by an astonishing energy, trapped in stone. Hirakud Dam, the fourth largest in the world, on Mahanadi, 328 km from Bhubaneswar is another tourist attraction.

Governor: G. Ramanujam; **Chief Minister:** J. B. Patnaik (Cong.I).

Punjab

Area: 50,362 sq km; **Capital:** Chandigarh; **Language:** Punjabi; **Districts:** 14; **Population:** 20,190,795; **Males:** 10,695,136; **Females:** 9,495,659; **Increase in (1981-90):** 3,401,880; **Growth Rate (per cent) 1981-90:** 20.26; **Density (persons per sq.km.):** 400; **Urban Population:** 29.55%; **Sex Ratio (males per 1000 females):** 888; **Literacy:** 57.1%; **Males:** 63.68; **Females:** 49.72; **Per capita income (89-90):** Rs. 7081. **1991 Census population total:** 20,281,969.

Physiography: Punjab is bounded on the west by Pakistan, on the north by Jammu and Kashmir, on the north east by Himachal Pradesh and on the south by Haryana and Rajasthan.



PAKISTAN

- STATE CAPITAL
- DISTRICT HEADQUARTERS

RAJASTHAN

JAMMU
AND KASHMIR

Punjab

HIMACHAL
PRADESH

GURDASPUR

HOSHIARPUR

AMRITSAR

KAPURTHALA

JULLUNDUR

FIROZPUR

LUDHIANA

RUPNAGAR

FARIDKOT

SANGRUR

PATIALA

BHATINDA

CHANDIGARH

HARYANA

UP

ically, the state may be divided into two sub-Shivalik strip and Sutlej Ghaggar Plain. Sub-Shivalik strip covers the upper portion of the Punjab. Hoshiarpur and Gurdaspur districts. The Sutlej-Ghaggar Plain embraces the other parts of the Punjab. The land is highly fertile and they are formed by the tributaries of the Ravi, Beas, Sutlej and the river Ghaggar. **History:** The word Punjab is made up of Persian words Panj and Aab, Panj means five and Aab means water. This name was probably given to this land of five rivers possibly in an era when this region came into close contact with Persia. Prior to that period this land was known by different names at different times. Probably, when at the height of its glory it was known as Sapta Sindhu, land of the seven rivers, namely Sindhu (Indus), Vitasta (Jehlum), Asuhi (Chenab), Ravi (Ravi), Vipasa (Beas), Satadru (Sutlej) and Sarani (Sarasvati). The last one is a dried up river now and its traces, according to geologists, are found in the present seasonal streams which flow near Pehowa in Haryana. During the British occupation, the territory had shrunk into an area covering the five rivers.

Punjab lies in the north west of India. Being in the way of invaders from the north, Punjab has to take a lot of battle from the invaders. Punjab emerges into history with the coming of the Aryans into India. The Aryans in the early Vedic age apparently settled in the Punjab and its neighbourhood. In 522 B.C. Darius of Persia conquered the territories around the Punjab and made them a Satrapy of Persia. In 326 B.C., Alexander the Great overran the Punjab. For a while, Macedonian governors controlled the Punjab but they were defeated by Chandragupta Maurya, who annexed the entire territory. With the decline of the Mauryan empire the Scythians occupied north west India and after them, the Kushans. The Kushans came next. Thereafter Punjab continued under indigenous rulers. From the tenth century A.D. began a series of Muslim invasions culminating with Babar, the founder of the Mughal Empire. With the decline of the Mughal empire two other Muslim invaders crossed into India, Nadir Shah in 1738 and Ahmad Shah Abdali in 1748, 1750 and 1751. Punjab had the worst of all these invasions. The Sikh faith, which played a decisive role in the creation of a Punjabi-speaking state, came into being during a period of religious revival in the 15th and 16th centuries. It was founded as a new religious order by Guru Nanak. He was followed by nine Gurus. The subsequent 200 years witnessed the growth of Sikhism and its transformation into a militant organization. Guru Angad developed Gurumukhi script by combining the scripts current in north India at

that time. Guru Ram Das laid the foundation of the city of Amritsar. Guru Arjun Dev compiled the Adi Granth. His son Guru Har Gobind started training his followers in the military art.

Punjab was annexed to British India by Lord Dalhousie in March, 1849. But the spirit of the Punjab remained unvanquished. Through the centuries Punjab became the sword arm of British India. The Punjab was constituted a separate province of India in 1937. With the partition of India, the Punjab was divided between India and Pakistan as East Punjab and West Punjab. On Nov. 1, 1956 the Princely States adjoining Punjab were formally absorbed into the Punjab State. On Nov. 1, 1966, Punjab was divided into three units Punjab comprising the predominantly Punjabi-speaking areas, Haryana made up of the Hindi-speaking districts and Kharar tehsil and Chandigarh the Capital. Hilly areas were transferred to Himachal Pradesh.

In Punjab, which has seen the worst violence in the last nearly ten years, a new era has dawned with the launching of 'Operation Healing Touch'. The State is comparatively free of the depredations of the terrorists. Mr. K. P. S. Gill, Director General of Police can take the credit for the large-scale elimination of terrorism.

Administration: The Legislature is unicameral—the Legislative Assembly. The state is divided into 14 districts.

Districts

District	Area in sq km	Population (1991)	Head-quarters
Amritsar	5,087	2,501,731	Amritsar
Bhatinda	5,551	1,554,948	Bhatinda
Faridkot	5,740	1,725,212	Faridkot
Ferozepur	5,874	1,599,501	Ferozepur
Gurdaspur	3,562	1,765,834	Gurdaspur
Hoshiarpur	3,881	1,430,210	Hoshiarpur
Jalandhar	3,401	2,033,994	Jalandhar
Kapurthala	1,633	641,884	Kapurthala
Ludhiana	3,857	2,425,868	Ludhiana
Patiala	4,584	1,904,321	Patiala
Sangrur	5,107	1,701,663	Sangrur
Ropar	2,085	905,629	Ropar
*Fatehgarh Sahib	1,140	384,866	Sarhind
*Mansa	2,192	578,815	Mansa

* These two new districts were carved out in April, '92. Area and population of districts affected (Patiala, Ludhiana, Ropar and Bhatinda) have yet to be worked out.

State of Economy: Punjab is primarily an agrarian state and agriculture occupies the most prominent place in Punjab's economy. About 70 per cent of the people are engaged in agriculture. As against an all India average of 51 per

cent, it has 85 per cent of its area under cultivation. The fertilizer consumption in Punjab is the highest in India. The efforts of the state government to provide irrigation facilities, cheap power and agriculture inputs at subsidised rates have acted as a catalyst for agriculture production. Total production of foodgrains rose from 170.92 lakh tonnes in 1987-88 to 207 lakh tonnes in 1992-93.

Agriculture production is now nearing the saturation point. Punjab's contribution is highest in the procurement of foodgrains for the central pool.

Punjab produces 51.33 MT of milk p.a., which is 10% of India's milk production. Per capita availability of milk in the state is also the highest in the country. Per capita availability of eggs in Punjab is 90, the highest in India (national — 22).

As many as 180,000 small scale industrial units are registered in the state April 1993 as compared to 135,305 in 1987-88. These units produce goods to the value of Rs. 1566 crores.

The chief manufactures are textiles, sewing machines, sports goods, sugar, starch, fertilizers, bicycles, scientific instruments, electrical goods, machine tools and pine oil.

Large scale industries are 410 and capital investment Rs. 5158 crores. Persons employed in industry are 9.40 lakhs. Infant mortality rate was 53 per 1000 in 1991.

By March, 1993 all inhabited villages in the state had been electrified.

Universities: Punjab Agl. University, Ludhiana; Punjab University, Patiala, Guru Nanak Dev University, Amritsar, Thapar Inst. of Engg. and Tech., Patiala.

Tourist Centres: Punjab is dotted with places of historical and cultural interest. Ropar, one of the centres of Indus Valley civilization, Amritsar, the city of the Golden Temple, sacred to the Sikhs, the ancient fort of Bhatinda, the architectural monuments of Kapurthala, the City of Gardens, Patiala and Chandigarh, the capital designed by the French architect Le Corbusier are among the leading tourist attractions of the state.

Governor: Lt. Gen. B. K. N. Chibber; **Chief Minister:** Harcharan Singh Brar (Congress-I).

Rajasthan

Area: 342,239 sq km; **Capital:** Jaipur; **Languages:** Hindi and Rajasthani; **Districts:** 30; **Population:** 43,880,640; **Males:** 22,935,895; **Females:** 20,944,745; **Increase in (1981-91):** 9,618,778; **Growth Rate (per cent) 1981-91:** 28.07; **Density (persons per sq. km.):** 129; **Urban Population:** 22.88%; **Sex Ratio (fe-**

New Jaipur

A 'New Jaipur' is in the making. The Jaipur Development Authority (JDA) has proposed to build it as an environment friendly new township.

The township is to come up in the lap of Aravallis on Jhalana Dungri region. It will also have planned woodlots, fast tract transport social infrastructure like schools, dispensaries and community shopping centres, a low density zone with tourist resorts, film studios and a golf course.

The basic structure for New Jaipur is expected to be ready in three years.

JDA believes that Jaipur, the Pink City, the first planned city in North India, does not figure among the top 10 preferred cities of the country for habitation as well as business.

Despite its place in the world tourism map, Jaipur was, of late, found wanting in many aspects as far as tourists and the elite population were concerned. Hence the new city.

The recent broad gauge rail link and the general peaceful atmosphere of the city were, however, proving to be a major attraction for many Rajasthanis doing business elsewhere in the country and NRIs hailing from the State to settle down in Jaipur.

Presently an area of 25,000 bighas is expected to be available for New Jaipur which would also have a separate NRI section.

The environmental aspects of the Jhalana hills will be taken into consideration while developing the city. JDA would try to put an end to mining in the Jhalana hills. Periphery towns would also come up along New Jaipur which 100 feet woods would be developed separating them from the main city. The houses in the new city would structurally resemble the traditional 'havelis' of Rajasthan.

It is planned to give private entrepreneurs a major role in building New Jaipur.

males per 1000 males): 913; **Literacy:** 38.07; **Males:** 55.07; **Females:** 20.84; **Per capita income (89-90):** Rs. 2923. **1991 Census population total:** 44,005,990.

Rajasthan is one of the border states of India sharing India's frontier with Pakistan on the west and northwest. Punjab bounds it on the north, Haryana and Uttar Pradesh on the north-east and east, Madhya Pradesh on the south-east and Gujarat on the south-west.

Physiography: Rajasthan is one of the states of India that show great contrast from one area to another. This disparity is noticeable

pect of climate, soil, vegetation, mineral sources, etc.

However, the state may be divided into 6 regions. (1) Western arid region, (2) Semi-arid region, (3) South eastern region, (4) Chambal plains, (5) Aravalli region and (6) Eastern region. The western arid region covers the whole of Jaisalmer district, north-western part of Barmer and Jodhpur, south-east Bikaner, south western Churu and western part of Nagaur. This region is characterized by typical desert conditions and forms the largest region in the state.

The semi-arid region lying west of the Aravalli ranges covers the districts of Jalore, Pali, South-eastern Jodhpur and Nagaur, Sikar, Jhunjhunu and north-eastern part of Churu. The southern part of this area is watered by the

Luni river while the northern part is an area of inferior drainage.

The Rajasthan canal (named as Indira Gandhi Canal) passes through the north-west portion of this region irrigating at present Ganganagar district and the north western part of Bikaner district.

The Aravalli region covers almost the whole of Udaipur, south eastern part of Pali and Sirohi and the western part of Dungarpur districts. The area is dominated by the mountains of the Aravalli range and outlying hills.

The eastern region comprises the districts of Jaipur, Ajmer, Sawai, Madhopur, Bhilwara, Bundi, Alwar, Bharatpur and north-western part of Kota. It is mainly drained by the Banas river and its tributaries. This region has the largest num-



ber of industries, located mainly at Jaipur, Ajmer, Kota, Bhilwara and Shahpura.

The south-eastern region embraces the districts of Banswara, Chittorgarh, Jhalawar and Kota. The Kota-Jhalawar area consists of stony uplands but the Chambal river and its tributaries have formed an alluvial basin in Kota.

The Chambal ravine region lies along the river Chambal, where it forms the boundary between Rajasthan and Madhya Pradesh.

History: The State of Rajasthan is an amalgam mainly made up of the old princely states of Rajasthan. It took some eight years for the state to come into its present shape. The first step towards the formation of this state was taken on March 17, 1948 with the formation of the Matsya Union, a Union of four princely states, Alwar, Bharatpur, Dholpur and Karauli. The second step came with the formation of Rajasthan, a Union of 9 states-Banswara, Bundi, Dungarpur, Jhalawar, Kishangarh, Kota, Pratapgarh, Shahpura and Tonk on March 25, 1948. The state of Udaipur joined this union on April 18, 1948, thus transforming the Union into the United States of Rajasthan.

The next two important steps were taken in 1949, the first on March 30, 1949 when the four large princely states of Bikaner, Jaipur, Jaisalmer and Jodhpur joined the United States of Rajasthan and the second on April 25, 1949 when the Matsya Union joined up. The new union was known as the United States of Greater Rajasthan. The Union of Greater Rajasthan was further enlarged by the accession to it of the state of Sirohi on Jan. 25, 1950. The final step was taken when the state of Ajmer, the tehsil of Abu and the area of Sunel Tuppa were integrated with Greater Rajasthan on Nov. 1, 1956, to be known simply as Rajasthan.

Administration: The legislature is unicameral the Legislative Assembly. The state is divided into 30 districts, 87 sub-districts and 211 tehsils. The High Court is at Jodhpur with an additional bench at Jaipur.

Districts

District	Popula- tion 1991	Area (sq km)	Head- quarters
Ajmer	1,723,081	8,479	Ajmer
Alwar	2,286,701	8,382	Alwar
Banswara	1,154,964	5,037	Banswara
Barmer	1,433,351	28,387	Barmer
Bharatpur	1,646,501	8,093	Bharatpur
Bhilwara	1,591,236	10,450	Bhilwara
Bikaner	1,209,107	27,231	Bikaner
Bundi	768,150	5,550	Bundi
Chittorgarh	1,482,267	10,858	Chittorgarh

Churu	1,539,470	16,829	Churu
Dungarpur	874,329	3,770	Dungarpur
Ganganagar	2,618,914	20,629	Ganganagar
Jaipur	4,719,257	14,068	Jaipur
Jaisalmer	343,648	38,401	Jaisalmer
Jalore	1,141,604	10,640	Jalore
Jhalawar	955,510	6,216	Jhalawar
Jhunjhunu	1,565,488	5,929	Jhunjhunu
Jodhpur	2,127,552	22,850	Jodhpur
Kota	2,027,375	12,437	Kota
Nagaur	2,137,258	17,718	Nagaur
Pali	1,484,691	12,391	Pali
S. Madhopur	1,953,807	10,593	S. Madhopur
Sikar	1,836,572	7,732	Sikar
Sirohi	653,324	5,135	Sirohi
Tonk	973,118	7,200	Tonk
Udaipur	2,885,039	17,267	Udaipur
Dholpur	748,326	3,000	Dholpur
Baran	809,176	—	Baran
Dausa	832,817	—	Dausa
Raj Samand*	—	—	Raj Samand*

*The 30th district has been carved out of Udaipur.

State of Economy: Total cultivable area 274.71 lakh hectare and irrigated area 53 lakh hectare. The principal crops are jowar, bajra, maize, wheat, grams, oil-seeds, cotton, sugarcane and tobacco. A deficit state in foodgrains in the pre-independence years, the state achieved an all-time high in farm yield in 1967-68 (661 tonnes). This abundance was followed by years of want and unprecedented scarcity which shattered the economy of the state. [Estimated agricultural production was 147.57 lakh tonnes in 1993-94.]

Textiles, rugged and woollen goods, sugar, cement, glass, sodium, oxygen and acetylene units, pesticides, insecticides and dyes are some of the major industries. Other enterprises include the manufacture of caustic soda, calcium carbide and nylon tyre cord and copper smelting.

Rajasthan handicrafts are famous all over the world. Important handicrafts are marble work, woollen carpets, jewellery, embroidery, articles of leather, pottery and brass embossing.

Total length of roads is 61,520 km and way length 6228 km.

Universities: University of Rajasthan, Jaipur; Ajmer University, Ajmer; Banasthali Vidyapeeth, Banasthali; Birla Institute of Tech. & Science, Pilani; University of Jodhpur, Jodhpur; Open University, Kota; Mohanlal Sukhadia University, Udaipur; Rajasthan Agricultural University, Bikaner; Rajasthan Vidyapith, Udaipur. Ajmer has become the first fully literate district in the whole of North India.

Tourist Centres: Rajasthan has several

ts to offer the tourist, especially in ancient medieval architecture. Places of interest are nt Abu, Ajmer, Alwar (Sariska tiger sanctuary), ratpur (Keoladeo bird sanctuary), Bikaner, ur (the Pink city), Jodhpur, Udaipur, Pali, almer and Chittorgarh. Tourism was given stry status in 1992. About 47.94 lakh tourists ed the state in 1991. There are four airports: ur, Udaipur, Jodhpur and Kotah.

Governor: Bali Ram Bhagat; **Chief Minis-** Bhairon Singh Shekhawat (BJP).

Sikkim

Area: 7,096 sq km; **Capital:** Gangtok; **Lang-** ges: Lepcha, Bhutia, Hindi, Nepali, Limbu; **Districts:** 4; **Population:** 403,612; **Males:** 1,723; **Females:** 188,889; **Increase (1981-** 87,227; **Growth Rate (per cent) 1981-** 27.57; **Density (persons per sq km.):** 57; **Urban Population:** 9.10%; **Sex Ratio (Females** 1,000 Males): 880; **Literacy:** 56.53; **Males:** 84; **Females:** 47.23; **Per capita income** (-90): Rs.4396. 1991 census final popula- n total: 406,457.

Sikkim, the 22nd state of the Indian Union, is small mountain state in the eastern Himalayas. Bounded by Tibet on the north, Nepal on the west and Bhutan on the east, West Bengal lies to the south. It is the least populous state in the Union. Sikkim is strategically important for India. It lies astride the shortest route from India to Tibet.

Sikkim became a state of the Indian Union under the Constitution (Thirty-eighth Amendment) Act, 1975, which came into force with retrospective effect from 26th April, 1975, when the amending bill was originally passed in both Houses of Parliament.

Physiography: The state is entirely mountainous. About a third of the land is covered with dense forests, where sal, simbal, bamboo and other plants thrive. Some of the finest forests lie in the northern-most areas in Lachen and Lachung. Here the mountains rise to elevations of 7000 metres and more. Annapurna (8579m), the world's third highest peak, rises from this area. The forests here are accessible and remain for the most part unexploited.

On an average, Sikkim receives 125 cm rain. But the rainfall varies widely between various regions like sheltered valleys, foothills and high mountains. River Tista and its tributaries drain the state. Tista is a perennial river being both rain-fed and snow-fed.

Sikkim boasts of several hundred different kinds of orchids and is frequently referred to as a botanist's paradise.

The population of Sikkim is mainly made up of the Lepchas, the Bhutias and their allied clans and the Nepalese.

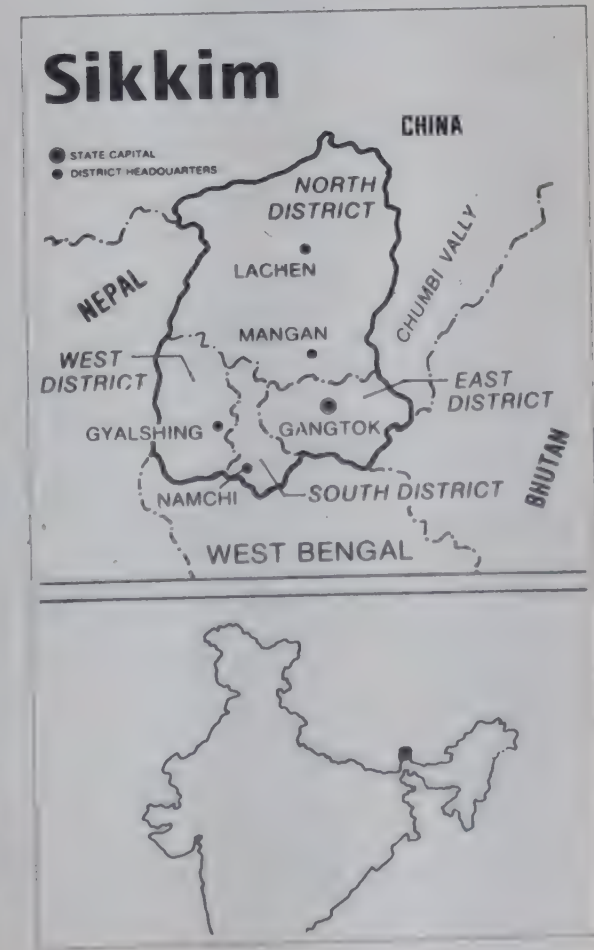
The Lepchas, who are believed to have come from Assam were the first settlers in Sikkim. The Bhutias came from Tibet in the 14th century. The Tsongs are a minority community. In the 18th and 19th centuries the Nepalese came into Sikkim and established themselves. And today, they form the majority community in the state.

Administration: The state has a unicameral legislature.

Sikkim is divided into four districts.

Districts

District	Area (sq km)	Population (1991)	Headquarters
East	954	176,145	Gangtok
North	4,226	31,143	Mangan
South	750	99,496	Namchi
West	1,166	96,828	Gyalshing



State of Economy: The state's economy is basically agrarian. The principal crops are maize, paddy, millet, wheat and barley, orange and cardamom are the main cash crops. Sikkim has the largest area and the highest production of large cardamom in India. Other important crops are potatoes, apples and buck-wheat. Already three Five Year Plans have been put through. The state's annual plan for 1990-91 has an outlay of Rs. 73 crore.

The government has set up 11 regional centres and 14 sub-regional centres for agricultural development. A number of high yielding seeds suitable to local climatic conditions have been developed. Campaigns for amendment of acidic soil and micro-nutrient application have also recorded significant progress.

The complex of Indian Council for Agricultural Research, set up at Tadong, is doing useful work.

Sikkim's tea estate at Temi and Kewzing extends over an area of 200 ha. Tea is exported to USSR and West Germany. A coffee plantation has also been started at Majitar on an experimental basis with commendable results.

Sikkim has been declared industrially backward. The main industrial units are the Food Preservation Factory at Singtam, Sikkim Tanneries Ltd. at Majitar, Sikkim Flour Mills at Tadong, Sikkim Distilleries at Rongpo, HMT watch assembly unit, Sikkim Time Corporation and Yoksum Breweries.

A multi-purpose Industrial Development and Investment Corporation also has been established.

The Rs. 50-lakh Roller Flour Mill set up at Tadong added an extruder food processing plant in 1983 to produce food of higher nutritive value for school children under a programme sponsored by UNICEF. Privatisation continues to be the key word, be it tourism or industry and the government is going all out for it.

Tourist Centres: Some of the important tourist centres are: Gangtok, Bakkhim—a natural garden, Yoksum—meeting of three great lamas, Dhubdi monastery, Tashing Monastery, Rumtek monastery, etc. There are 200 monasteries in Sikkim. Khangchendzonga National Park is one of the highest national parks in the world and includes the world's third highest mountain (Kanchenjunga).

The centre's decision in Feb. 1990 to relax the inner line permit for foreigners has given a new thrust to tourism in the state. A 78-bed tourist hotel at Gangtok, a 50-bed tourist lodge at Pemayangtse in West Sikkim and a guest house at Rongpo have been constructed. With the opening of a Tourist Information Centre in Siliguri (West Bengal), tourists have no longer to go to Darjeeling for getting permits for visiting

Sikkim. There is no airport in Sikkim. Bagdogra airport in West Bengal caters to the state.

Governor: K.V. Raghunath Reddy (Additional Charge); **Chief Minister:** Pawan Kumar Chatterjee (Sikkim Demo. Front)

Tamil Nadu

Area: 130,058 sq km; **Capital:** Madras; **Language:** Tamil; **Districts:** 23; **Population:** 55,638,318; **Males:** 28,217,947; **Females:** 27,420,371; **Increase in (1981-91):** 7,230,241; **Growth Rate (per cent) 1981-91:** 14.9; **Density (persons per sq. km.):** 428; **Urban Population:** 34.15%; **Sex Ratio (females per 1000 males):** 972; **Literacy:** 63.72%; **Male Literacy:** 74.88; **Females:** 52.29; **Per capita income (1991):** Rs. 4428. **1991 census final population total:** 55,858,946.

Tamil Nadu is situated on the south eastern side of the Indian peninsula. It is bounded on the east by the Bay of Bengal, in the south by the Indian ocean, in the west by the Arabian Sea and the States of Kerala and Karnataka and in the north by Karnataka and Andhra Pradesh. It is the eleventh largest state in India and occupies 6 per cent of the country's total area.

Physiography: The land mass of the state can be divided into two natural divisions; (i) the eastern coastal plain (ii) the hilly region along the north and the west. The coastal plain is usually sub-divided into (a) the Coromandel plain comprising the districts of Chengai, Annamalai, South Arcot and North Arcot, Ambedkar (b) the alluvial plain of the Kaveri delta extending over Thanjavur and part of Tiruchirappalli districts and (c) the dry, southern plains in Madurai, Ramanathapuram, Kamarajar, Dindigul, Annamalai, Kanyakumari, Pasumpon, Thevar, Thirumangaludi and Tirunelveli, Kattabomman Districts.

Along the whole length of the western part, a distance from the sea varying from 80 to 100 km runs the range of the Western Ghats, a steep and rugged mass averaging 1220 metres above the sea level and rising to 2440 metres at its highest point. The Palghat Gap about 25 km wide is the only marked break in the great mountain wall. To the south of this gap, the range is known as Anamalai (Elephant Hills).

On the east are the Palani Hills on which is situated the famous hill station Kodaikanal. The slopes of the Western Ghats are covered with heavy evergreen forests. These slopes are the sources of the rivers Kaveri, Vaigai and Tamiraparani. The Nilgiris and the Anamalai are the hill groups with the maximum height.

In the famous Ootacamund area of the Nilgiris District, is the highest peak Doddabetta, 2665 metres above the sea level. The so-called Ea-

ghats begin in Orissa and pass through
m district of Orissa and run south west
gh all the districts lying between Ganjam
ilgiris plateau.

the rivers of the state flow eastward from the
ern ghats and are entirely rain-fed. The
nial rivers are:- Palar, Cheyyar, Ponnaiyar,
ri, Meyar, Bhavani, Amaravati, Vaigai,
ar and Tamaraparni. The non-perennial
s are the Vellar, Noyal, Suruli, Gundar,
r, Valparai and Varshali. The 760-km-long

Kaveri is the great river of the state. Rising on
Brahmagiri, a hill in Coorg in the Western Ghats,
almost near the Arabian Sea, it travels the entire
breadth of the peninsula and forms a large delta
at its mouth in the Thanjavur District before
flowing into the Bay of Bengal.

History: Tamil Nadu has a very ancient
history that goes back some 6000 years. The
state represents the nucleus of Dravidian cul-
ture in India, which antedated the Aryan culture
in India by almost a thousand years. It is generally

Tamil Nadu



held that the architects of the Indus Valley Civilizations of the 4th millennium B.C. were Dravidians and that at a time anterior to the Aryans, they were spread over the whole of India. With the coming of the Aryans into North India, the Dravidians appear to have been pushed into the south, where they have remained confined. Tamil Nadu, with the other southern states Andhra Pradesh, Karnataka and Kerala, today form the repositories of the Dravidian Culture.

The Dravida country of which modern Tamil Nadu formed a part, was reputedly under three dynasties, Chola, Pandya and Chera from the 4th century B.C. The Cholas occupied the present Thanjavur and Tiruchirappalli Districts and surrounding territories and excelled in military exploits. In the 2nd century B.C. a Chola Prince, Elara, conquered Ceylon (Sri Lanka). The Pandyas excelled in trade and learning. They controlled the districts of Madurai and Tirunelveli and part of South Kerala. A Pandiyan King sent an ambassador to the Roman Emperor Augustus in the first century B.C. The Cheras were powerful on the west coast in what is, today, Central and North Kerala.

The Pallavas of Kanchi rose to prominence in the 4th century A.D. and dominated the south for another 400 years. In the sixth century they overran the Chola dominions and carried their arms as far as Ceylon (Sri Lanka). The famous Alvars and Nayanars, sage-poets, flourished during the Pallava era. In the 9th century the last of the Pallavas was defeated by the Cholas who again became a great power in the south.

In the 13th century the Pandyas became dominant. Their kingdom was a great centre of international trade. The rise of Vijayanagar spelt the decline of the Pandyas. They were ultimately defeated by Vijayanagar, and their territories were annexed to the Vijayanagar Empire. With the disintegration of the Vijayanagar Empire, Tamil Nadu was parcelled out among several petty kings.

The rise of Muslim power in India has had its impact on Tamil Nadu, but by and large, Tamil Nadu remained unaffected by the political convulsions in north and central India. With the establishment of the East India Company at Madras in 1639, a new chapter was opened in the history of Tamil Nadu. Slowly but steadily, the whole of Tamil Nadu and most of South India came under British sway.

When India became free, the old Madras province, comprising Tamil Nadu and Andhra Pradesh and part of Kerala continued as the state of Madras. But the agitation for a separate Andhra state compelled the Government of India to bifurcate the State into two separate States. Andhra Pradesh to include the Telugu-speaking areas and Madras, the Tamil speaking

India's first elevated railway

On November 15, 1995, the country's first elevated multi-crore suburban railway scheme was opened in Madras. The prestigious project between Madras Beach and Chepauk, known as Mass Rapid Transit system (MRTS) has heralded a new era in the transportation scene in the southern city.

The Chief Minister Ms. Jayalalitha said on the occasion that MRTS would be a landmark for Madras, which was pursuing a Rs. 1,25 crore Vision 2000 project to upgrade the urban infrastructure.

The first phase of the project conceived in 1983-84 involves laying nearly nine kilometres of broad gauge track, 6.22 km of elevation. The scheme from Madras Beach to Luz, when completed, would have eight stations, five of them elevated.

The first phase opened mid-November covers a distance of five km. and would have five stations, two of them elevated.

The remaining stretch is expected to be completed by the middle of 1996. When completed there will be five elevated stations—Chintadripet, Chepauk, Triplichan, Llyods Road and Luz.

The second phase of the project envisages laying of nearly eight more kilometres of rail track from Luz to Taramani (near Adyar).

The first phase when approved in 1983 was estimated to cost Rs. 53.46 crores but due to slow flow of funds the project would now cost at least Rs. 185.61 crores.

The track is laid on girders, most of the 18 metres long and each weighing 20 tonnes. The engineering design for casting and launching of girders was evolved by the metropolitan transport project with technical assistance from IIT, Madras, and executed by the Rashtriya Paryojana Nirmigam (RPNN) and the Indian Railway Construction Company (IRCON).

The elevated stations, each costing Rs. 5.17 crores, have three floors. The ground floor has the ticket counters, the mezzanine floor, three metres above, houses the amenities and the platform is nine metres above the ground floor.

The central government has been urging by Tamil Nadu to take up expansion of MRTS upto Taramani in the southern part of the city for its full potential to be realised.

s. The old capital Madras City was retained as the new Madras State.

Under the States Reorganization Act 1956, Madras lost the Malabar District and the Kasargod District of S. Kanara District to the newly formed Kerala, while Madras gained four taluks of Travancore District and Shencotta taluk of Cochin District from Kerala. The four taluks gained were constituted into a new district of Madras as the Kanyakumari District. The new Mysore State (Karnataka) absorbed some parts of the old S. Kanara District (excluding Kasargod District) and the Kollegal taluk of the Coimbatore District. In April 1960, 405 sq miles of Chittoor District in Andhra Pradesh was transferred to Madras in exchange for 326 sq miles from Mangalpattu and Salem Districts.

On Jan. 14, 1969, Madras State changed its name to Tamil Nadu. However, the capital city still known by its old name, Madras.

Administration: The legislature consists of the Tamil Nadu Legislative Assembly, The Legislative Council was abolished in 1986. The state is divided into 25 districts.

Districts

District	Area (sq km)	Population 1991	Headquarters
Agastya-MGR	7,857	4,653,593	Kancheepuram
Coimbatore	7,434	3,531,078	Coimbatore
Dharmapuri	9,622	2,428,596	Dharmapuri
Kanyakumari	1,684	1,600,349	Nagercoil
Kanyakumari	174	3,841,400	Madras
Kanyakumari	7,057	3,449,662	Madurai
Kanyakumari	5,952	1,768,679	Dindigul
Nagapattinam	4,614	2,387,864	Nagapattinam
Udagamandalam	2,549	704,827	Udagamandalam
Vellore	4,314	3,026,432	Vellore
Erode	8,170	2,322,851	Erode
Pudukkottai	4,649	1,322,494	Pudukkottai
Ramanathapuram	4,133	1,135,887	Ramanathapuram
Virudhunagar	4,243	1,554,350	Virudhunagar
Sivagangai	4,050	1,074,989	Sivagangai
Salem	8,650	3,914,239	Salem
Cuddalore	3,564	2,122,759	Cuddalore
Thiruchirappalli	11,075	4,114,323	Thiruchirappalli
Thanjavur	3,603	2,138,845	Thanjavur
Tirunelveli	6,838	2,493,189	Tirunelveli
Tiruvannamalai	6,191	1,997,458	Tiruvannamalai
Tuticorin	4,621	1,455,920	Tuticorin
Viluppuram	6,896	2,755,674	Viluppuram

In September 1995, Thiruchirappalli district was reformed into three districts (i) Trichi Perumbidugu district (HQ—Trichi); (ii) Karur Deevanahalli district (Karur); (iii) Perambalur district (Perambalur).

State of Economy: Agriculture is the mainstay of Tamil Nadu's economy. The yield of rice amounting to 2.5 tonnes per hectare is among the highest in India. At the end of 1993, Tamil Nadu achieved a production level of 68.05 lakh tonnes of rice and other cereals, and 3.42 lakh tonnes of pulses.

Tamil Nadu's sugarcane yield of 100 tonnes per ha is a world record. About 3.5 lakh acres have sugar cane grown on them. Cotton is grown in 2.8 lakh ha.

The principal plantation crops are tea and coffee.

Tamil Nadu accounts for nearly one fourth of the spinning capacity in India, one fifth of cement, caustic soda and nitrogenous fertilisers and one tenth of the nation's production of sugar, bicycles and calcium carbide. Tamil Nadu produces 60% of safety matches and 77% of finished leather.

The Tamil Nadu Industrial Development Corporation (TIDCO), State Industries Promotion Corporation of Tamil Nadu (SIPCOT) and TIIIC are the major Corporations set up to provide financial assistance and technical knowhow to large, medium and small scale industries. With the aid of these Corporations, industrial complexes called growth centres and industrial estates have been provided in different parts of Tamil Nadu. Hosur, Ranipet, Guindy, Ambattur, Karaikudi, Sivagangai, Paramakudi and Tiruchirappalli. Major ports are Madras and Tuticorin. Main railway junctions include Madras, Madurai, Tiruchirappalli, Coimbatore and Salem. The length of road network is nearly 1.70 lakh km.

Universities: Sri Avinashalingam Inst. for Home Sci. & Higher Edn. for Women, Coimbatore; Tamil University, Thanjavur; Tamil Nadu Agriculture University, Coimbatore; Mother Teresa Women's University, Madras; University of Madras, Madras; Madurai Kamaraj University, Madurai; Indian Inst. of Tech., Madras; Gandhigram Rural Inst., Gandigram; Bharathiar University, Coimbatore; Bharatidasan University, Thiruchirappalli; Alagappa University, Karaikudi; Anna University, Madras; Annamalai University, Annamalai Nagar, Tamil Nadu; Dr. M.G.R. Medical University, Madras; Tamil Nadu Veterinary and Animal Sciences University, Madras; Manonmaniam Sundaranar University, Tirunelveli. Deemed University: Kancheepuram; SRM College & Research Institute, Madras.

Tourism: Tamil Nadu Tourism Development Corporation runs a chain of 17 hotels, one Beach Resort and 10 Youth Hostels.

It has also constructed boat houses at Muthukkadu, Ooty, Pichavaram and Yercaud.

Hill Stations: Uthagamandalam (Ooty), Kodaikanal and Yercaud.

Religious Places: Suchindram, Rameswaram, Tiruchendur, Madurai, Palani, Tiruchirapalli, Srirangam, Thanjavur, Kumbakonam, Nagore, Velankanni, Vaitheeswaran Koil, Chidambaram, Thiruvannamalai, Kancheepuram, Tiruttani and Kanyakumari.

'Bharata Natyam', the sophisticated classical dance form of Tamil Nadu has now become popular all over India. 'Pongal' is the chief festival.

Tourist Centres: Mamallapuram (Mahabalipuram), Poompuhar, Pichawaram, Point Calimere, Courtallam, Hogenakkal, Anamalai Sanctuary, Mudumalai Sanctuary, Vedanthangal Bird Sanctuary, Kalakkad and Vandaloor Zoo and Mundanthurai Sanctuary.

At Madras: Fort St. George, San Thome, Fort Museum, Marina Beach, Snake Park, Guindy Park, Guindy Deer Sanctuary and Children's Park, Egmore Museum, Valluvarkottam Park, Crocodile and Vandaloor Zoo, Muthukkadu Boat House.

Governor: M. Chenna Reddy; **Chief Minister:** Ms. J. Jayalalitha (AIADMK).

Tripura

Area: 10,486 sq km; Capital: Agartala; Languages: Bengali, Kakbarak and Manipuri; Districts: 3; Population: 2,744,827; Males: 1,410,545; Females: 1,334,282; Increase in (1981-91): 691,769; Growth Rate (per cent) 1981-91: 33.69; Density (persons per sq. km.): 262; Urban Population: 15.30%; Sex Ratio (females per 1000 males): 946; Literacy: 60.39%; Males: 70.08; Females: 50.01; Per capita income (89-90): Rs. 2866. 1991 census final population total: 2,757,205.

Tripura is the second smallest state in India. It was formally declared a Union Territory on November 1, 1957 and elevated to the status of a full-fledged state on January 21, 1972.

Religious Population: Hindus - 1,834,218; Muslims 138,529; Christians 24,872; Sikhs 285; Buddhists 54,806.

Physiography: Tripura is surrounded by Bangladesh on all sides, except for a narrow neck in the north-east, where it borders on Assam and Mizoram.

History: Tripura was a state of great antiquity having been ruled by the Maharajas for 1,300 years before its accession to the Indian Union on October 15, 1949. With the reorganization of states on Sept. 1, 1956 Tripura became a union territory. The territory was made a state on January 21, 1972.

Administration: The Legislature has a single chamber—the Legislative Assembly. The jurisdiction of the Guwahati High Court extends over

Tripura, with a bench functioning at Agartala. Tripura is divided into three districts, administrative sub-divisions, 177 tehsils and 5215 villages.

Districts

District	Area (sq.km.)	Population '91	qu
North Tripura	3,544	697,330	Kaila
West Tripura	3,033	1,293,861	Ag
South Tripura	3,909	766,014	Ud

State of Economy: About 54.5% of the area is under forest. Only about 24.3% area is available for agricultural use. The principal crops are paddy, wheat, jute, mesta, sugarcane, pulses and oil seeds. Agriculture is being practised on about 2.5 lakh ha. Rice production in 91-92 was 4.7 lakh tonnes.

Tripura



is a major industry. There are 49 registered tea gardens covering an area of 5.527 lakh acres and producing 45 lakh kg of tea per year. Tripura Tea Development Corporation has started new plantations. A jute mill set up in Agartala under the public sector produces about 1000 tonnes of jute products per day and employs about 2,000 persons.

Handloom weaving is the single largest industry. It is essentially a tribal household industry. Pilot centres have been started for imparting training in improved techniques. Tripura Handloom & Handicrafts Development Corporation sells their products. Apex Weavers' Society caters to the needs of about 50 primary co-operative societies. The organization has been marketing products worth Rs. 100 crore a year on an average. About 7000 weavers have been getting benefits.

The sericulture industry is developing fast. Area under mulberry cultivation is about 1000 ha and production of cocoon is estimated to be 100 kg per year. A design centre on handicrafts is functioning at Agartala. About 5000 craftsmen are now engaged in production of handicrafts (mainly cane and bamboo) products. Tripura is abundant in natural gas and a number of gas based industries have sprung up. Provision has been laid for a Rs. 126 crore ethanol project of the state owned Tripura Chemicals Ltd.

There are 809 small scale industrial units in Tripura.

Total road length is 336 km. There are 3 ports.

University: Tripura University, Agartala.

Tourist Centres: Important tourist centres are Nirmahal, Sipahijala, Dumboor Lake, Lalasagar, Jompui Hill, Unakoti and Matabari. The government has set up an advisory committee (Sept., '94) to boost tourism.

Governor: Siddheswar Prasad; **Chief Minister:** Dasrath Deb (CPM).

Uttar Pradesh

Area: 294,411 sq km; Capital: Lucknow; Language: Hindi; Districts: 63; Population: 160,417; Males: 73,745,994; Females: 86,671,905; Increase in Population (1981-91): 27,897,905; Growth Rate (%) 1981-91: 26.02; Density (persons per sq. km.): 542; Urban Population: 19.84%; Sex Ratio (males per 1000 females): 882; Literacy: 55.35; Males: 55.35; Females: 26.02; Per capita income (89-90): Rs.2866. 1991 census population total: 139,112,287.

Uttar Pradesh is the most populous state in India. In area, it ranks fourth, after M.P., Rajasthan

and Maharashtra. It covers about 9 per cent of the total area of India.

Religious population: Hindus - 92,365,968, Muslims - 17,657,735, Christians - 162,199, Sikhs - 45,647; Buddhists - 54,542.

Physiography: Uttar Pradesh is bounded by Nepal on the north, Himachal Pradesh on the northwest, Haryana on the west, Rajasthan on the southwest, Madhya Pradesh on the south and southwest and Bihar on the east.

Uttar Pradesh can be divided into three distinct regions: (i) northern mountains, (ii) southern hills and plateau and (iii) the Ganga plain.

1. The lofty Himalayas embraces Uttar Kashi, Chamoli, Pithoragarh, Tehri-Garhwal, Garhwal and Almora districts, Nainital tehsil of Nainital district and Chakrata tehsil and a part of Dehra Dun tehsil of Dehra Dun district in the north, covering about one-sixth of the total area of the state.

2. This region covers almost the whole of Jhansi, Jalaun, Hamirpur and Banda districts, the Meja and Karchhana tehsils of Allahabad district, nearly the entire Mirzapur district south of the Ganga river and the Chakia tehsil of Varanasi district. The altitude in this area does not generally exceed 300 metres above mean sea level.

3. Between the Himalayas in the north and the hills and plateau in the south lies a vast homogeneous alluvial plain, one of the largest in the world. Because of the deep alluvium strata the region is almost devoid of minerals, which partly accounts for the very insignificant industrial development of U.P. On the other hand, its high fertility has led to heavy pressure of population on land.

The state has a tropical climate except for the Himalayan region which has a temperate climate.

The main rivers of the state from west to east are the Yamuna, the Ganga, the Ramganga, the Gomati and the Ghaghara. All the rivers, except the Gomati, emerge from the Himalayas. The Yamuna and the Ganga flow from north-east to south-west in their upper mountainous courses, from north to the south in western parts of the state and thereafter from north-west to south-east, joining at Allahabad.

History: Uttar Pradesh has a very ancient and colourful history. Although the state does not find mention in the Rig Veda, it is recognised in the later vedic age as Brahmarshi Desa or Madhya Desa. Many of the great sages of the Vedic times like Bharadwaja, Yajnavalkya, Vasishta, Viswamitra and Valmiki appear to have flourished in U.P. Many sacred books of the Aryans were also composed here. Varsha Purana, for example, is associated with Mathura.

The two great epics of India, the Ramayana

Uttar Pradesh



and the Mahabharata, appear to have been inspired by U.P. The Ramayana features the royal family of Kosala and the Mahabharata centres round the royal family at Hastinapura, both in Uttar Pradesh.

In the 6th century B.C., U.P. was associated with two new religions, Jainism and Buddhism. Mahavira, the founder of Jainism, is said to have breathed his last at Doora in U.P. It was at Saranath, again in U.P., that the great Buddha preached his first sermon and laid the foundations of his order. In the post-Buddhist period

several centres in U.P., like Ayodhya, Varanasi and Mathura became reputed centres of learning. Sri Sankaracharya, the great reformer established one of his ashrams at Sringeri in U.P.

In the mediaeval period U.P. passed under Muslim rule and led the way to a new synthesis of Hindu and Islamic cultures. Ramanand and his Muslim disciple Kabir, Tulasidas and many other intellectuals contributed to the growth of Hindi and Urdu. Urdu remains a perfect synthesis of Hindu and Muslim culture.

Uttar Pradesh kept up its intellectual leadership under the British administration. The British combined Agra and Oudh into one province called the United Provinces of Agra and Oudh. The name was shortened to United Provinces in 1935. After independence in January 1950, the United Province was renamed Uttar Pradesh.

Administration: The state has a bicameral legislature the Legislative Assembly and the Legislative Council.

The state is divided into 13 zones and 63 districts.

Districts

Districts	Area (sq km)	Population (1991)	Head- quarters
Agra	4,027	2,704,545	Agra
Aligarh	5,019	3,296,758	Aligarh
Allahabad	7,261	4,909,919	Allahabad
Amroha	5,385	824,134	Amroha
Azamgarh	4,214	3,148,830	Azamgarh
Bahraich	6,877	2,748,327	Bahraich
Ballaia	2,988	2,249,598	Ballaia
Banda	7,624	1,851,014	Banda
Bara-Banki	4,401	2,422,763	Bara-Banki
Bareilly	4,120	2,822,988	Bareilly
Basti	4,284	2,705,764	Basti
Bijnor	4,715	2,444,989	Bijnor
Budaun	5,168	2,440,135	Budaun
Bulandshahr	4,352	2,842,391	Bulandshahr
Chamoli	9,125	441,667	Chamoli
Dehra Dun	3,088	1,014,700	Dehra Dun
Deoria	5,445	4,427,345	Deoria
Etah	4,446	2,240,328	Etah
Etawah	4,326	2,128,151	Etawah
Faizabad	4,511	2,983,950	Faizabad
Fatehgarh	4,274	2,431,426	Fatehgarh
Fatehpur	4,152	1,890,697	Fatehpur
Pauri	5,397	666,165	Pauri
Ghaziipur	3,377	2,398,746	Ghaziipur
Ghaziabad	2,590	2,755,636	Ghaziabad
Gonda	7,352	3,571,797	Gonda
Gorakhpur	3,324	3,067,280	Gorakhpur
Hamirpur	7,165	1,465,401	Hamirpur
Hardoi	5,986	2,739,003	Hardoi
Orai	4,565	1,217,021	Orai
Jaunpur	4,038	3,205,019	Jaunpur
Jhansi	5,024	1,426,751	Jhansi
Kanpur(Rural)	5,137	2,136,504	Kanpur
Kanpur(Urban)	1,040	2,485,490	Kanpur
Kheri	7,680	2,413,463	Kheri
Lalitpur	5,039	748,997	Lalitpur
Lucknow	2,528	2,744,578	Lucknow
Mainpuri	2,759	1,306,161	Mainpuri
Mathura	3,811	1,923,920	Mathura
Mau	1,727	1,441,027	Mau
Meerut	3,911	3,404,000	Meerut
Mirzapur	4,952	1,653,834	Mirzapur
Moradabad	5,967	4,114,119	Moradabad

Muzaffarnagar	4,049	2,833,856	Muzaffarnagar
Nainital	6,794	1,557,415	Naini Tal
Pilibhit	3,499	1,277,331	Pilibhit
Pithoragarh	8,856	557,148	Pithoragarh
Pratapgarh	3,717	2,210,680	Pratapgarh
Rae Bareilly	4,609	2,320,620	Rae Bareilly
Rampur	2,367	1,498,294	Rampur
Saharanpur	3,860	2,298,495	Saharanpur
Shahjahanpur	4,575	1,981,950	Shahjahanpur
Sitapur	5,743	2,846,450	Sitapur
Sultanpur	4,436	2,560,805	Sultanpur
Tehri-Garhwal	4,421	575,352	Narendranagar
Unnao	4,558	2,195,513	Unnao
Uttarkashi	8,016	237,772	Uttarkashi
Varanasi	5,091	4,798,729	Varanasi

New Districts

Sidharth Nagar	2,944	1,706,634	Navagarh
Haridwar	1,994	1,122,781	Haridwar
Firozabad	2,362	1,532,282	Firozabad
Maunath Bhanjan	1,727	1,441,027	Maunath Bhanjan
Sonbhadra	6,358	1,068,637	Robertsganj
Maharajganj	2,948	1,679,342	Maharajganj

State of Economy: U.P. is the largest producer of foodgrains and oilseeds in the country. It leads all the states in India in the production of wheat, maize, barley, gram, sugar-cane and potatoes.

Among food crops wheat, rice, gram, maize and barley are important in the state. The state produces about one half of the total sugarcane output in the country.

Until recently the organized industrial sector of U.P. was confined to agro-based industries such as sugar, cotton textiles, edible oils, miscellaneous food preparations, paper, etc. However, of late, electricity generation, railroad equipment, electrical machinery, basic industrial chemicals and aluminium and cement factories have sprung up.

Sugar, cotton textiles and miscellaneous food preparations, (mainly comprising edible oils including hydrogenated oils) are the three important industries in the large scale sector.

The size of 1994-95 plan was fixed at Rs.4,562 crores. For the co-ordinated and rapid economic development, emphasis is being laid on village oriented small industries like handlooms, silk and others. Under the seventh plan, 216,251 small industries units were set-up. At the end of the sixth plan big and medium industries were set-up with an investment of Rs. 3,575 crore and their number increased to 939 with total investment of Rs. 7,842.98 crore during the seventh plan. Eighth plan target was to set-up 500 more new industries with an investment of Rs. 2,000 crore. In Feb. 1993, medium and large industrial undertakings were 1311 with an investment of Rs.9,739.51 crore, and small scale industries units numbered over 3 lakh having an investment

of Rs.1801 crore. Rate of industrial development growth is expected to be 12.5 per cent.

Total Plan outlay for 96-97 is to be hiked to Rs. 7000 crore from Rs. 5702 crore in the previous year.

Handloom industry meets nearly one-third of the total requirement of cloth in the state.

Twenty four spinning mills are functioning in the state under public and private sectors. More than 44,000 persons are employed in these mills.

There are 7.4 lakh artisans in U.P.

Now because of the availability of gas from Bombay High, scope of industries in the state is very wide. Two fertilizer plants based on gas have already been set up. Other big industries are goods carrier equipments, photostat machines, chemicals, polyester fibre, polyster chips, colour picture-tube, watches, jelly-filled cables, sheet moulding, compounds and steel-tube galvanized sheets. Over and above projects worth Rs. 7,000 crore are under consideration. Among them are fertilizer, gas cracker, aromatic complex, polyster filament yarn, optic fibre, ethylene glycol and photofilm.

The state is India's "sugarcane bowl" producing 25.55 lakh tonnes.

Total generating capacity of hydro, thermal, diesel power houses is 4,643.73 MW.

Universities: Agra University, Agra; Allahabad University, Allahabad; Aligarh Muslim University, Aligarh; Avadh University, Faizabad; Banaras Hindu University, Banaras; University of Bundelkhand, Jhansi; Chandrasekhar Azad University of Agril. & Tech., Kanpur; Dayalbagh Educational Trust, Agra; Garhwal H. N. Bahuguna University, Srinagar; University of Gorakhpur, Gorakhpur; Govind Ballabh Pant University of Agriculture & Tech., Nainital; Gurukula Kangri Vishwa Vidyalaya, Haridwar; Kanpur University, Kanpur; Kumaun University, Nainital; University of Lucknow, Lucknow; Meerut University (Chaudhary Charan Singh 'varsity), Meerut; Narendra Deva University of Agri. & Tech., Faizabad; Rohilkhand University, Bareilly; University of Roorkee, Roorkee; Sampurnanand Sanskrit Vishwa Vidyalaya, Varanasi; Sanjay Gandhi P.G. Inst. of Med. Sciences, Lucknow. The Central Government has decided in principle to convert Dr. Bhabha Ambedkar University at Lucknow into a Central University.

Tourist Centres: Uttar Pradesh has a treasure of rare scenic beauty spots, rich fauna and flora, ideal health resorts, high mountain peaks, fascinating rivers and captivating valleys.

The world-renowned Valley of Flowers, Yamunotri, Gangotri, Kedarnath, Badrinath, Hemkund, Pindari Glacier and hill resorts of rare charm, like Naini Tal and Mussoorie, Rani-

khet and Almora attract ever increasing number of tourists. Places like Sravasti, Sarnath, Kanagar, Sankisa and Kaushambi attract pilgrims both from within and outside the country.

Besides ancient places of pilgrimage Varanasi, Naimisharanya, Prayag and Haridwar are also situated in the state. Places like Taj Mahal, the white marble mausoleum by Shah Jahan, being the chief attraction of Ayodhya, Sarnath, Varanasi, Lucknow, Mathura and Prayag have rich treasures of Hindu and Islamic architecture.

Governor: Motilal Vohra. **President's**

West Bengal

Area: 88,752 sq km; **Capital:** Calcutta; **Language:** Bengali; **Districts:** 18; **Population:** 67,982,732; **Males:** 35,461,898; **Females:** 32,520,834; **Increase in (1981-91):** 24.55; **Density (persons per sq. km):** 766; **Urban Population:** 27.48%; **Sex Ratio (males per 1000 females):** 917; **Literacy:** 55.1%; **Males:** 67.24; **Females:** 47.15; **Per capita income (89-90):** Rs. 3963. **1991 census population total:** 68,077,965.

West Bengal covers the bottleneck of India, the east stretching from the Himalayas in the north to the Bay of Bengal in the south, bounded on the north by Sikkim and Bhutan, on the east by Assam and Bangladesh, on the south by the Bay of Bengal and on the west by Bihar and Nepal.

Physiography: West Bengal has two main divisions, the Himalayan north comprising districts of Darjeeling, Jalpaiguri and Cooch Behar and the alluvial plain that lies south of Darjeeling, the northernmost district. The maximum elevation of 3658 m above sea level. The Jalpaiguri and Cooch Behar districts are low-lying areas watered by swift-flowing rivers like the Tista, the Teesta, the Jaldhaka, the Rangit. The southern part is a vast, populated level expanse of rice fields with mango, coconut and banana gardens. The vast alluvial plain is the handiwork of many rivers, the chief of which are the Bhagirathi, its tributaries - the Mayurakshi, the Damodar, the Kangsabati, and the Rupnarayan. The Hooghly, called Hooghly in its lower reaches, is itself a branch of the Ganga and provides a link with the sea.

The entire state belongs to the high rainfall region. Rainfall varies from 1006 mm in the South Western region to 2933 mm in the North Eastern region. However the state capital receives an annual rainfall i.e. 1605 mm.

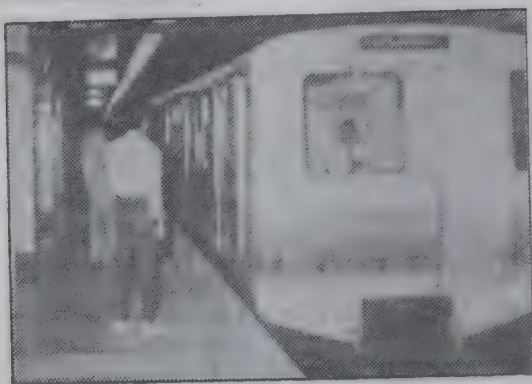
History: The old Bengal (of which V

West Bengal



...rms a part) known as Gauda or Vanga in ancient Sanskrit literature appears to have been celebrated from the epic period. The Mahabharata refers to the King of Vanga as an

ally of the Kauravas in their war against Pandavas. Apparently at the time of Aryan penetration into the east, Vanga had a well-settled civilization and culture.



The Metro, at last

On September 14, 1995, Metro rake completed its maiden journey from Esplanade to Dum Dum fulfilling a two decade long dream of Calcuttans. The foundation stone was laid in December, 1972.

Work began in 1973-74 with the project-cost put at Rs. 170 crores. It has shot up to Rs. 1,540 crores now. The rail-based intra-urban mass rapid system stretches from Dum Dum in the north to Tollygunge in the south, a distance of 16.45 Km.

As work went in full swing, the sleek yellow and blue trains has been running already on the Tollygunge—Esplanade section, covering 9 of the 17 stations.

An allocation of Rs.200 crores by the Railway Ministry for 1994-95 helped speed up construction.

The Overseas Economic Co-operation Fund (OEFC) of Japan had provided a loan of Rs. 20 crores in 1983-84 for the construction of the metro.

Two methods are employed in the construction of the underground railway—cut and cover and shield tunneling. Two diaphragm walls were first built during the cut and cover operation, then the earth between them was excavated and a box structure constructed for passage of trains.

During shield tunneling, a steel tube was pushed through the soil with segmented tunnel lining rings erected behind it. After the construction of box or tunnel, the ballastless track was laid, with the third rail providing 750 volts d.c. to run the trains. The environs of the tunnel are ventilated by cool air.

The metro rail authorities have begun a thorough review of the safety aspect of the metro, in view of recent incidents of fire in passenger coaches and flooding of the tracks.

In the 3rd century B.C. Bengal was part of Mauryan Empire and from the 4th to the 6th centuries A.D., it was under the Gupta dynasty. About A.D. 800, Bengal had its own dynasty of independent kings, the Palas. The Palas were very powerful and expanded their territory into the neighbouring countries of Bihar, Orissa and Assam.

At the height of their power they had diplomatic relations with the Indonesian King Vijaya. In the 11th century, Bengal passed under the rule of a new dynasty, the Senas. The Senas who ruled from their capital at Nadia were driven out by Qutbud Din, the Sultan of Delhi. Bengal became a part of the Delhi Empire. With the death of Aurangzeb, the last of the great Mughals, Bengal became independent under its Muslim governors. Siraj Daula, the independent Muslim ruler of Bengal, was defeated by the British at the battle of Plassey in 1757. For about seven years the British were in a sort of dual control with the successors of Siraj Daula, Mir Jaffar and Mir Kasim. In 1764, Mir Kasim was routed at the battle of Buxar and the British took over the administration of Bengal.

When Bengal was first constituted by the British as a province it was a vast area, including present-day Bihar and Orissa and extending westwards upto Agra. In 1863 Agra was detached from Bengal but Assam was added to it. In 1884 Assam was formed into a separate province.

In 1905, Lord Curzon divided Bengal into two provinces. A new province called Assam and East Bengal with its capital at Dacca was carved out of old Bengal. The rest of the territory together with Bihar and part of Orissa formed West Bengal. This event, known as the partition of Bengal, aroused the dormant

patriotism of the Bengalis, who opposed the partition as an attempt at disintegrating Bengal. The rest of India stood by Bengal and the movement broke out.

Peace was restored in 1911, when the partition was abrogated by a declaration of King George V at the Royal Durbar in Delhi. An exchange announced at the Durbar was the shift of the capital from Calcutta to Delhi. The new Bengal did not include Assam or Bihar. It covered a compact area of over 200,500 sq km.

When India became independent in 1947, Bengal was partitioned between India and Pakistan. While Pakistan's share came to be called East Pakistan, India's share was called West Bengal. In 1950 the Princely State of Cochin was merged into West Bengal. The former enclave of Chandranagore was added on January 1, 1954. Under the State Reorganization Act, parts of Bihar were transferred to Bengal.

Administration: The legislature is

the Legislative Assembly. The state is divided into 18 districts.

Districts

District	Area (Sq.Kms)	Population (1991)	Head- quarters
Burdwan	6,882.0	2,805,065	Bankura
Chhota Nagpur	4,545.0	2,555,664	Suri
Howrah	7,024.0	6,050,605	Bardhaman
Calcutta	104.9	4,399,819	Calcutta
North Bengal	3,387.0	2,171,145	Cooch-Behar
Darjeeling	3,075.0	1,299,919	Darjeeling
Chinsurah	3,149.0	4,355,230	Chinsurah
Howrah	3,467.0	3,729,644	Howrah
Jalpaiguri	6,227.0	2,800,543	Jalpaiguri
Malda	3,733.0	2,637,032	Malda
Midnapore	14,081.0	8,331,914	Midnapore
Berhampore	5,324.0	4,740,149	Berhampore
Krishnagar	3,927.0	3,852,097	Krishnagar
Purulia	6,259.0	2,224,577	Purulia
Barasat	-	7,281,881	Barasat
Alipore	14,135.1	5,715,030	Alipore
Balurghat	5,358.0	3,127,653	Balurghat
Dinajpur	-	1,926,729	Dinajpur
North Dinajpur	-	1,200,924	Dinajpur

Each district has been divided into two - north and south sub-districts.

The three-tiered panchayat system is with 7 Gram Panchayat at base, 331 panchayat committees at the community block (intermediate) level and 16 Zilla (District) at the apex. The last Panchayat Election took place in May, 1993. The total number of seats at different levels taken together stands at 62,692 only. West Bengal is the first state where 30% reservation of seats for women in the elected bodies was implemented. This was done under the Panchayati and Nagarika Act. The Panchayat acts as agencies for implementing development programmes.

State of Economy: Bengal's 56.5 per cent population is engaged in agriculture and it contributes over 30 per cent of the state's income. The 1993-94 foodgrains output was 131 lakh tonnes. The state produces 15.3 per cent of the country's total production of rice. The area under rice cultivation in 1993-94 was 58.75 lakh hectares. The state accounted for 66.5 per cent of the country's jute (including mesta) and 22.2 per cent of tea. Jute goods output was 11.15 lakh tonnes in 1993-94. Potatoes, oilseeds, betelvine, tobacco, wheat, barley and maize are the other crops. One of the major industrial states in India, West Bengal had 9,597 registered and functioning factories (excluding Defence factories) in 1990. The number of registered small-scale industries upto March, 1994 was 13,217. Durgam and Burdwan have steel plants.

Major industries include engineering, auto-

mobiles, chemicals, pharmaceuticals, aluminium, ceramics, jute, cotton textiles, tea, paper, leather, footwear, bonemeal, bicycle, dairy, poultry and timber-processing. Central public sector undertakings include locomotive, cable, fertiliser, ship-building and ordnance. State undertakings include tea, sugar, chemicals, phyto-chemicals, agro-textile, sugar beet, fruit and vegetable processing, electro-medical and other allied industries (including mineral development). Coal and china clay are two important minerals being exploited.

Calcutta's Metro Rail project, the first of its kind in the country, has been commissioned in 1995. Total road length in the state was 57,619 km (1988), and railway route length 3,825 km (1991-92). Calcutta is the most important port followed by Haldia.

Universities: Bidhan Chandra Krishi Viswa Vidyalaya, Mohanpur (District Nadia); University of Burdwan, Burdwan; University of Calcutta, Calcutta; Jadavpur University, Calcutta; University of Kalyani, Kalyani (District Nadia); North Bengal University, Siliguri (District Darjeeling); Rabindra Bharati University, Calcutta; Viswabharati, Santiniketan (District Birbhum); Vidyasagar University, Midnapore; Asiatic Society (deemed University) Calcutta; Indian Institute of Management, Calcutta; Indian Statistical Institute, Calcutta; Indian Institute of Technology, Kharagpur (Dist: Midnapore).

Tourist Centres: Calcutta upto 1912 was the capital of India. Now, of course, it is the commercial capital of the north-eastern states of India. It is also the headquarters of the State Government. It is the centre of industries like jute, tea, hides and skins, coal, lac, etc. Places of interest, among others, are Victoria Memorial (Picture Gallery and Museum), Indian Museum, Zoological Garden, Paresnath Temple (Jain Temple), Kalighat Temple (Architecture: Typical Mediaeval Bengal), Nakhoda Mosque, Dhaknineswar Temple, Nandan Mahajati Sadan, Belvedere House (originally the residence of British Viceroys when they visited Calcutta, now turned into National Library), Raj Bhavan (official residence of State Governor), Marble Place, Eden Gardens, Binoy Badal-Dinesh Bag (erstwhile Dalhousie Square), Ashutosh Museum of Arts (of the Calcutta University), Birla Industrial and Technological Museum, Birla Planetarium, Saheed Minar (formerly Ochterlony Monument), Fort William, Jorasanko Thakurbati (Birth place of Nobel laureate Rabindranath Tagore), Rabindra Sarovar (Lake with swimming pool, Japanese Buddhist temple and Toy Train), Nehru Children's Museum, New Market, Howrah Bridge (renamed as Rabindra Setu), etc.

Governor: K. V. Raghunath Reddy; **Chief Minister:** Jyoti Basu (CPM).

Union Territories

Andaman and Nicobar

Area: 8249 sq km; **Capital:** Port Blair; **Languages:** Bengali, Hindi, Nicobarese, Telugu, Tamil & Malayalam. **Districts:** 2; **Population:** 277,989; **Males:** 152,737; **Females:** 125,252; **Increase in (1981-91):** 89,248; **Growth Rate (per cent 1981-91):** 47.29; **Density (persons per sq. km.):** 34; **Urban Population:** 26.91%; **Sex Ratio (females per 1000 males):** 820; **Literacy:** 73.74%; **Males:** 79.68; **Females:** 66.22; **Per capita income:** Rs. 6,751 (92-93). **1991 census final population total:** 280,661.

Andaman and Nicobar Islands are a group of more than 3000 islands, the great majority of which (about 265) are uninhabited being too small and with little or no water. This group of islands in the Bay of Bengal may be considered the counterpart of the Lakshadweep Islands in the Arabian sea both of them being the overseas possessions of the Indian Union.

Physiography: Andaman and Nicobar Islands are continental islands lying between 6 and 14 degrees north latitude and 92 and 94 degrees east longitude. They form two broad groups Andamans and Nicobars which are separated by the 10 degree channel which is about 145 km wide and 400 fathoms deep. Geologically the islands appear to have been part of the land mass of south east Asia comprising north east India, Burma, Thailand, Malaysia and Indonesia.

It is thought that Andamans and Nicobars are the remnants of two vast mountain ranges which, at one time, stretched from Arakan in Burma (Cape Negrais) to Sumatra (Achin Head) in Indonesia.

Port Blair, the headquarters of the Islands, is 1255 km from Calcutta (by sea), 1191 km from Madras and 580 km from Yangon (Rangoon).

The Andaman Group has, at the extreme north, Land Fall Island which is about 900 km from the mouth of the Hooghly river and about 190 km from Burma. This Island is followed by the three main islands, North Andaman, Middle Andaman and South Andaman all of them separated from each other by shallow seas. This area is known as Great Andaman. Further south, at a distance of about 100 km from Port Blair, lies Little Andaman Island. Besides these, there is a large number of other islands in the group, many of them very small in size.

The Nicobar Group lying south of the An-

damans extends from 66 to 100 north latitude. The northernmost island is Car Nicobar which lies about 120 km to the south of Andaman and the southernmost island is Great Nicobar barely 150 km from Sumatra. Pygma Point also known as Parsons Point which since been renamed as Indira Point is the southernmost tip of India and not Kanyakumari as is popularly known.

The important islands in this group are Great Nicobar, Car Nicobar, Chowra, Teresa, Katchal, Kowrie, Katchal and Little Nicobar.

The total area of the two groups of islands is 8249 sq km of which Andamans with 634 sq km accounts for more than 76 per cent of the land area.

The total area of the Nicobar group of islands is 1953 sq km, the length and width being 260 km and 58 km respectively. In this group the Great Nicobar has the largest area of about 1045 sq km.

The climate of Andaman & Nicobar Islands is of the tropical type but the continuous blowing in from the surrounding seas makes it very pleasant.

The tiny, uninhabited Barren island, 13 km from Port Blair, has an active volcano, which is the only one of its kind in the region.

History: The Andaman and Nicobar Islands also known as the Bay Islands, had little historical importance till the advent of the European powers into India and the East in the 16th century. The Portuguese who came first were not particularly interested in these islands. The Dutch who came next drove the Portuguese from the East Indies and the Bay Islands finally came into their domain. Meanwhile the British who had established themselves in India came into conflict with the Dutch in and around the Andamans. It did not take long for the British to drive out the Dutch and occupy the islands.

The first settlement was established in the Andamans in the year 1789. Attempts at civilisation were ultimately given up but the settlement survived. Then came the Revolt of 1857 in India. The British found that they had in their hands a large number of rebel convicts whom the Indian prisons of those days hardly contain. The Andamans offered a ready-made solution. It is estimated that between 1858 and 1860 some 2000-4000 sepoy convicts were sent to the Andamans. Many of them died. The construction of the Cellular Jail

n up in 1896. The construction itself was
ed out by convicts.

ne constitutional reforms of 1935 necessi-
la thorough revision of policy. In Sept. 1937,
rst batch of prisoners left the Andamans and
n. 1938 all prisoners were released.

ne Second World War and the consequent
nese occupation from 1942-1945 brought
slanders a taste of foreign military occupa-
After the evacuation of the Japanese in
, the islands, as part of India, became free
ugust 15, 1947.

ne beneficial result of the Japanese occupa-
was the expulsion of the mainland traders.
r independence, the Government was keen
traders did not return to exploit the people
destroy their culture. The Andaman and
bar Islands (Protection of Aboriginal Tribes)
was passed in 1956, under which entry into
l areas was prohibited and no outsider could
y on trade or industry in the islands, without

the licence from the Administrator. Since 1938,
refugees and ex-servicemen were permitted and
encouraged to settle down in the islands. Many of
them have now become permanent settlers.

On November 1, 1956 the Andaman and
Nicobar Islands were constituted into a Union
Territory, administered by the President of
India. From November 1982 onwards the local
administration is headed by a Lt. Governor with
his headquarters at Port Blair. In 1979 in response
to a national demand, the former Prime Minister
Morarji Desai dedicated the Cellular Jail as a
National Memorial.

Administration: The entire territory is de-
limited into 4 Sub Divisions and 7 tehsils as
follows:-

Area, Sub Divisions, Tehsils

Sub Division	Tehsils in the Sub division	Area sq km
1. Mayabunder	1. Diglipur	884
	2. Mayabunder	1348
	3. Rangat	1098
2. South Andaman	1. Port Blair	
	2. Ferrargunj	3010
3. Car Nicobar	1. Car Nicobar	129
4. Nancowrie	1. Nancowrie	1824

Population 1991

Andamans District	203,968
Nicobars District	39,021
Total	* 277,989

* A recent estimate puts population at 319,000.

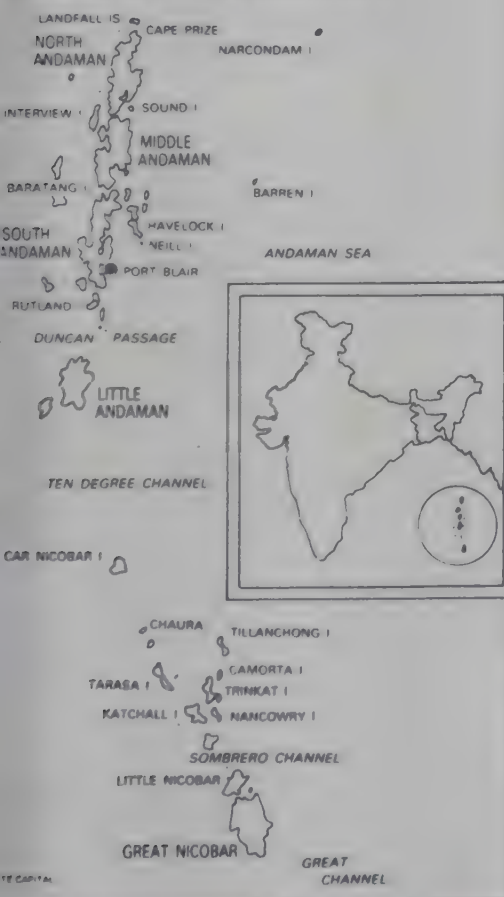
State of Economy: As forests cover 7,130 sq km of the total area, wood-based industries have come up. Padauk and gurjan are among the most valuable timber. There are 869 small scale and handicraft industrial units besides a few large units. The large ones are located at Haddo and Chatham in Port Blair, Bambooflat in South Andaman, Bakultala and Long Island in Middle Andaman.

The products comprise sawn timber, commercial plywood, match splints and veneers. The small units are engaged in shell crafts, furniture making, bakery products, rice milling, wheat grinding, oil, extraction, etc. Non-industrial training-cum-production centres are also functioning.

As large scale agricultural and industrial development is impossible here, fisheries, tourism and ship repairing are the areas that can create jobs and bring economic prosperity without causing environmental damage.

Only six per cent of the island's area is available for cultivation. Total cropped area is 15,827 hectares. The principal crops are rice,

Andaman and Nicobar Islands



coconuts and arecanut. Other crops are sugarcane, pulses, fruit and vegetables. Spices and rubber are being tried.

Present fisheries output is only 25,000 tonnes p.a. but there is great potential in this sector.

There are 3 newspapers and 22 periodicals. Schools number 316 in all.

The greatest hurdle to progress is the islands' geographical isolation. The island have a fleet of 57 ships. The Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO) was set up in 1988 to promote integrated development by identifying thrust areas.

The installed capacity of power generation is 30,000 kw today (as against 100kw in 1947), with all revenue villages electrified. There is a network of 866 km of black-tapped roads and 5 wharfs and 41 jetties linking all inhabited islands.

Tourist Centres: Anthropological Museum, Marine Museum, Chatham Saw Mill, WIMCO Factory, Andaman Timber Industries, Zoological Garden, Mount Harriet, Chidiya Tapu (Bird Island), Wandoor Beach, Viper Island, Cellular Jail and Dillithaman Tank, sound and light show at National Memorial. In 1992 the government decided to open up the islands to foreign tourists.

There are regular air and sea services between the mainland and the islands. IA flies from Delhi, Calcutta and Madras to Port Blair. Ships ply between Calcutta, Madras, Vishakapatnam and Port Blair.

Lt. Governor: Vakkom Purushothaman.

Chandigarh

Area: 114 sq km; **Capital:** Chandigarh; **Languages:** Hindi and Punjabi; **Districts:** 1; **Population:** 640,725; **Males:** 357,411; **Females:** 283,314; **Increase in (1981-91):** 189,115; **Growth Rate (per cent) 1981-91:** 41.88; **Density (persons per sq. km.):** 5,620; **Urban Population 89.69%**; **Sex Ratio (females per 1000 males):** 793; **Literacy:** 78.73%; **Males:** 82.67; **Females:** 73.61. 1991 census final population total: 642,015.

Chandigarh has been a Union Territory since 1966. It is the capital of both Punjab and Haryana where the High Court and the University for both states are located. A planned modern city, it was designed by the French architect Le Corbusier.

Population

District	area (sq. km.)	Population 1991
Chandigarh	114	640,725

State of Economy: The Territory has 3,000 hectares of cultivable land. The irrigated area is about 2,740 ha. Wheat, maize and paddy are major crops. The forest covers 27 per cent of area.

There are 15 large and medium scale industrial units in Chandigarh, out of which 10 are public sector undertakings. More than 2,533 units are registered under small scale sector. Chandigarh gets 3.5 per cent share of the total power generated in Bhakra complex.

Universities: Punjab University, Chandigarh; Post-Graduate Inst. of Medical Education and Research, Chandigarh.

Tourist Centres: Rose Garden, Rock Garden, Shanti Kunj, Lake, Museum, Art Gallery, Capital complex and National Gallery of Modern Art.

Administrator: Lt.Gen.B.K.N.Chibber.



Dadra and Nagar Haveli

Area: 491 sq km; **Capital:** Silvassa; **Languages:** Bhili, Bhilodi, Gujarati and Hindi; **Districts:** 1; **Population:** 138,542; **Males:** 67,927; **Females:** 67,615; **Increase in (1981-91):** 34,866; **Growth Rate (per cent) 1981-91:** 63; **Density (persons per sq. km.):** 282; **Rural Population:** 8.47%; **Sex Ratio (females per 1000 males):** 953; **Literacy:** 39.46%; **Males:** 47.07; **Females:** 26.10. 1991 census final population total: 138,477.

Dadra and Nagar Haveli lie near the west coast surrounded by the states of Gujarat and Maharashtra. It consists of two pockets namely Dadra and Nagar Haveli and these two pockets are intercepted by the territory of Gujarat.

History: The territory of Dadra and Nagar Haveli was originally assigned to the Portuguese by the Maratha government in 1779 for an integrated revenue of Rs. 12,000/- in return for their friendship. The Portuguese ruled this territory till its liberation in 1954. After liberation, the administration was carried on by an Administrator chosen by the people themselves. Probably this is the only part of the country which was ruled by the people themselves for about 8 years (1954 to 1961). On 11th August, 1961, the territory was integrated into the Indian Union.

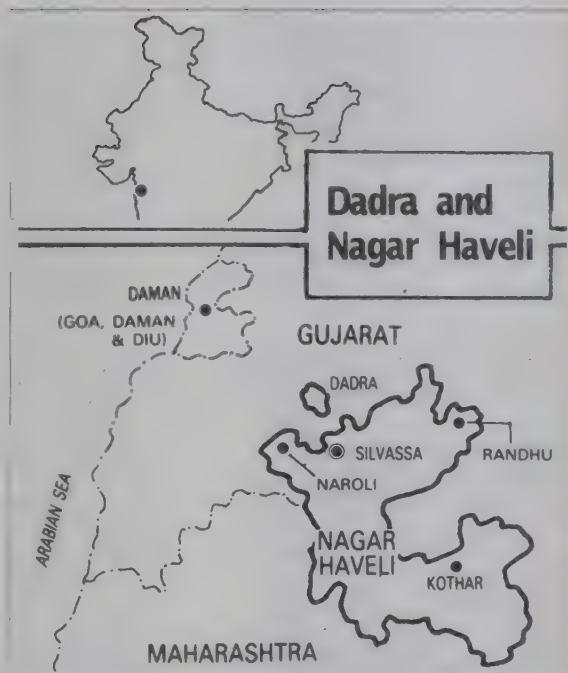
Administration: The territory is under the control of an Administrator. The first group panchayats at the village level were established in 1968 and thereafter elections are being held regularly every four years.

Population

District	area (sq. km.)	Population 1991
Dadra & Nagar Haveli	491	138,542

State of Economy: Agriculture is the principal occupation of adivasis who represent 79 per cent of the total population as per 1991 census. Paddy, ragi, pulses and fruits are the major crops while wheat, vegetables and sugarcane are also cultivated. Total cropped area is 27,715 hectares. The Department of Agriculture has taken up several schemes to explore the production potential of this area. Area under high yielding varieties during 1989-90 is about 7,300 hectares. A number of new commercial crop varieties are produced. 96 per cent of the area is under dry land farming. Hence, dry farming technology is used to get top yield by tapping rainwater.

At present there are in all four industrial



estates (three Govt. and one Co-operative Industrial estates) in the territory. The cooperative industrial estate is at Silvassa and the Govt. estates are one each at Masat, Khadoli and Silvassa (second phase). No. of small scale industrial units with permanent registration has increased to 516 during 1989-90. There were 96 medium scale units and 38 cottage and village scale units during 1989-90. Altogether there are 431 units which produce goods to the tune of Rs. 372 crore. Since 1988 about 60 small scale and medium scale units for texturising and twisting of polyester yarn have been set up.

The products manufactured include spectacle frames and flooring tiles, buckets, bread & biscuits, furniture, katha and tenin, spun pipes, plastic moulded articles, chemicals, detergent powder, art silk fabrics, electrical fixtures, watches, candles, tin containers, chappals, rexine cloth, foam, etc. About 8975 employees have been engaged in these industries. Total road length: 352.83 km. Electricity is supplied by Gujarat. The nearest railway station Vapi is 18 km from Silvassa. The nearest airport is at Bombay.

Tourist Centres: There are beautiful gardens on the banks of river at Silvassa and Khanvel. A tourist complex at Khanvel named 'Van Vihar' has been set up. Van Ganga and Vandhara Garden on the Damanganga river, Bai Udyan, Tadkeshwara temple on Sakartod river at Brindaban are other picnic points.

Administrator: Ramesh Chandra.

Daman and Diu

Area: 112 sq km; Capital: Daman; Languages: Gujarati and Marathi; Districts: 2; Population: 101,439; Males: 51,452; Females: 49,987; Increase in (1981-91): 22,458; Growth Rate (per cent) 1981-91: 28.43; Density (persons per sq. km.): 906; Urban Population: 46.80%; Sex Ratio (females per 1000 males): 972; Literacy: 73.58%; Males: 85.67; Females: 61.38. 1991 census final population total: 101,586.

Daman and Diu were separated from Goa to become an independent union territory when Goa was accorded full statehood in 1987. These three different landblocks on the west coast of India had come to form one political unit after liberation from the erstwhile Portuguese regime in 1961.

Physiography: Daman lies on the Gujarat coast while Diu is an islet on the southern fringe of Kathiawar peninsula.

Daman is bounded on the north and south by the Bhagwan and the Kalem rivers respectively, on the east by the Gujarat State and on the west by the Arabian Sea.

Diu, lies in the Gulf of Cambay near Veraval Port and is separated from the southern extremity of the Saurashtra Peninsula by a narrow channel running through a swamp. The island is connected to the mainland by a narrow channel on the north. Daman has a mild and humid climate while Diu has a sultry climate.

History: Diu was occupied by the Portu-

guese in 1534. In 1559, Daman also was annexed by them. The inquisition which established in Goa, largely contributed to downfall of the Portuguese empire in the

Under the Constitution (Twelfth Amendment) Act 1962, Goa was included in the schedule to the constitution as a territory of the Indian Union. By the 57th amendment to the constitution Daman and Diu were separated from Goa to become an independent union territory.

Daman and Diu have no subdivisions. Daman region is under the charge of a Commissioner while Diu is under the charge of a Civil Administrator.

Districts

District	Area (sq km)	Population (1991)	Population per sq km
Daman	72.0	61,951	860
Diu	40.0	39,488	987

State of Economy: Fishing is the main economic activity. Mechanised boats and fishing gear requisites are being provided.

For agriculture, area under double cropping is being increased by raising irrigation facilities. There are 377 industrial units in the territory.

All the villages have been electrified. A power station has been set up in Diu and another is coming in Daman.

Tourism: Apart from historical monuments, Devka beach in Daman and Nagoa beach in Diu attract visitors. The rebuilt airport was opened in 1992. The nearest railhead is just 8 km from Daman.

Administrator: Ramesh Chandra.

Daman and Diu



Delhi

Area: 1,483 sq km; Capital: Delhi; Languages: Hindi, Punjabi and Urdu; Population: 9,370,475; Males: 5,120,733; Females: 4,249,742; Growth Rate (per cent) 1981-91: 50.64; Density (persons per sq. km.): 6,320; Urban Population: 89.93%; Sex Ratio (females per 1000 males): 830; Literacy: 75.05%; Males: 82.63; Females: 68.01. Per capita income : Rs. 5,315.00. 1991 census final population total: 9,420,614.

The National Capital Territory of Delhi is a small territory with the reflected glory of a metropolis. It performs all the functions as the capital of India. But beyond the confines of the metropolis and short of the imperial associations, this territory is a green zone.

Physiography: The Territory forms a small enclave inside the eastern frontier of Haryana.



battle of Tarain (1192) the Rajput army was routed. Prithvi Raj was captured and put to death. Delhi thus passed into the hands of Muslim rulers for the next six centuries. Under the Mughal Emperors, Delhi became a world famous city.

In 1857, following the mutiny of Indian troops, the British deposed the titular Emperor Bahadur Shah and formally annexed Delhi. In 1912, the capital of British India was transferred from Calcutta to Delhi. A new city New Delhi of imposing dimensions was laid out by the side of the old city Old Delhi by the British Indian Government. Independent India has retained this historic capital.

Delhi's population growth

Delhi is likely to emerge as the most populous Indian city by the year 2010.

A report prepared by the Directorate of Economics and Statistics says population may go up from the estimated 10.838 m. on March 1, 1995 to 12.903 m. in March, 2000, and climb up to 18.208 m. in March, 2010.

More than half of the growth is on account of immigration from other places.

Another finding of the report on Population Statistics is that electricity, as per 1991 census data, was available to 14.80 lakh households which constituted 79.40 per cent of the total and toilet facilities were available only to 63.38 per cent of the households. Over 11 lakh households have both toilet and electricity facilities.

The main fuel used by majority of Delhiites (46.47 per cent) for cooking is cooking gas, while 41.60 per cent rely on kerosene.

The housing sector shows a shortfall of 2.48 lakh houses, which works out to 13.33 per cent.

According to the report there are 18.05 lakh houses in Delhi being used for residential purposes, out of which 16.29 lakh houses were in urban areas and 1.76 in rural areas.

Further, 68.10 per cent of the households were living in their own houses, 28.61 per cent were inhabiting rented houses.

The population of Scheduled Castes in Delhi has been increasing at a faster rate than the general population. From 12.85 per cent of total population in 1961, the percentage of SCs has gone up to 19.05 of the total population.

India. The climate of the territory is influenced by its inland position with the desert Rajasthan to the west and southwest and fertile plains of U.P. to the east. Extreme heat with an intensely hot summer and cold winters are the characteristics of the climate. The climate can broadly be divided into four seasons. The cold season starts in late November and ends about the beginning of March. This is followed by the hot season which lasts till about the end of June when the monsoon arrives. The monsoon continues into the last week of September. The two post-monsoon months October and November constitute a transition period from monsoon to winter conditions.

History: The city of Delhi was founded in the 12th century A.D. by a Rajput Chieftain of the Chauhan clan. The Chauhans obtained possession of the city from the Tomaras. Prithvi Raj, Chauhan ruler of Ajmer and Delhi, made the city of Delhi famous by his heroic valour and military adventures. Delhi under Prithvi Raj Chauhan under Jai Chand were the principal strongholds of north India at that time.

The first invasion of India by Muhammad Ghori was beaten back by Prithvi Raj in the first battle of Tarain in 1191. Next year, Ghori came to avenge his defeat and in the second

Administration: Delhi became a Union Territory on November 1, 1956. Under the Delhi Administration Act 1966, Delhi got a Metropolitan Council consisting of 61 members, five of whom are nominated by the President of India. The Lt. Governor was the Administrator, assisted by 4 Executive Councillors (One Chief Executive Councillor and three Executive Councillors) appointed by the President of India on the recommendation of the Union Home Ministry.

In December, 1991 Parliament passed the constitution (74th amendment) Bill providing the National Capital Territory a legislative assembly comprising 70 seats along with a 7-member council of ministers headed by a Chief Minister.

The Territory is made up of three census towns, Delhi, New Delhi and Delhi Cantt, and 214 villages. It is represented by 7 members in the Lok Sabha and 3 members in the Rajya Sabha. The Territory is covered by 3 local bodies Delhi Municipal Corporation, New Delhi Municipal Committee and Cantonment Board. The rural area of the Territory falls within the jurisdiction of the Municipal Corporation of Delhi.

State of Economy: Delhi's cultivated area is fast diminishing due to urbanisation. Total crop area decreased from 1,17,000 hectares to 77,000 hectares in 1989. Wheat, Bajra, Jowar and Maize are the major food crops. Emphasis has shifted to vegetables, fruits, dairy and poultry.

Delhi is the largest commercial hub in northern India. It is also the largest centre of small industries manufacturing TV sets, musical systems, electrical goods, light engineering machines, automobile parts, sports goods, bicycles, plastics and PVC goods, textiles, fertilisers, medicines, hosiery, leather goods, soft drinks, etc. There are also units for metal forging, casting, galvanising, electro plating, printing and warehousing. About 81,000 units with an investment of Rs. 1580 crore are in operation. About 7.29 lakh persons are engaged in manufacturing goods worth Rs. 4250 crore.

Some traditional handicrafts for which Delhi was formerly famous, still flourish. Among them are ivory carving, miniature painting, gold and silver jewellery, etc. The handwoven textiles of Delhi are particularly fine, this craft having been successfully revived.

Universities: University of Delhi; Jawaharlal Nehru University; Jamia Milia Islamia; All India Institute of Medical Sciences; Indian Agri. Research Institute; Indian Institute of Technology; Indira Gandhi National Open University; Jamia Humdard University; National Museum Inst. of Art, Conservation and Museology; School of Planning and Architecture.

Tourist Centres: Since Delhi has been the

capital of India for centuries, it is full of monuments. Both the Delhis the old city of the Mughals established by Shah Jehan and the new city constructed by the British in 19th century are centres of tourist interest.

Among them are Rashtrapati Bhavan, Lodi Gardens, Parliament Buildings, Chandragupta Red Fort, Juma Masjid, Raibat, Raj Ghat, Humayun's Tomb, Lodi Tomb, Qutb Minar, Humayun's Tomb, Lodi Tomb, Qutb Minar, Khas, Safdarjung's Tombs, Jantar Mantra, India Gate.

The Zoological Garden, Kashmiri Garden, Mandir, Vigyan Bhavan, National Museum, Naught Circus, Buddha Jayanti Park, Rangasala and Nehru Memorial Museum of importance.

Besides, Agra, the city of Taj Mahal, of Sri Krishna legends, Tuglagabad, Surajpalli Lakshmi Narayan Temple, Sohna, Sarovar Lake, etc. are also around.

Lt. Governor: P. K. Dave. **Chief Minister:** Madan Lal Khurana (BJP.)

Lakshadweep

Area: 32 sq km; **Capital:** Kavaratti; **Language:** Malayalam; **District:** 1; **Population:** 51,681; **Males:** 26,582; **Females:** 25,100; **Population increase in (1981-91):** 11,432; **Growth rate (1981-91):** 28.40; **Density (per sq. km.):** 1,615; **Urban Population:** 56%; **Ratio (females per 1000 males):** 94; **Literacy:** 79.23%; **Males:** 87.06; **Female:** 71.00; **1991 census final population total:** 51,681.

The tiniest Union Territory of India, Lakshadweep is an archipelago consisting of 36 islands, three reefs and five submerged reefs. Its 36 islands covering an area of 32 sq km, 10 are inhabited. They are Andrott, Agatti, Bitra, Chetlat, Kadmat, Kalpeni (Headquarters), Kiltan and Minicoy. The smallest of all having only a population of 10 persons (1991). The total area of the 29 islands is 32 sq km. Bangaram Island (previously uninhabited) present has a population of 61 persons.

Physiography: Lakshadweep lies about 440 km from the coastal city of Kerala between 8° and 12° 13' north and 71° and 74° east longitude. The islands and Cochin are linked by ship, with a journey of about 18 to 20 hours, and by air.

Though the land area is extremely small, consider its lagoon area of about 4,00,000 sq km of territorial waters and seven lakh sq km of economic zone. Lakshadweep is one of the largest territories of our nation.

The flora of the islands includes

sia, drumstick, bread-fruit, jack fruit and
mond. Coconut is the only crop of eco-
importance in Lakshadweep. These are
in different varieties such as Laccadive
Laccadive ordinary, green dwarf, etc.
ifferent varieties of sea grass are seen
nt to the beaches. They are known as
ssia hemprichin and Cymodocea
olia. They prevent sea erosion and move-
of the beach sediments.

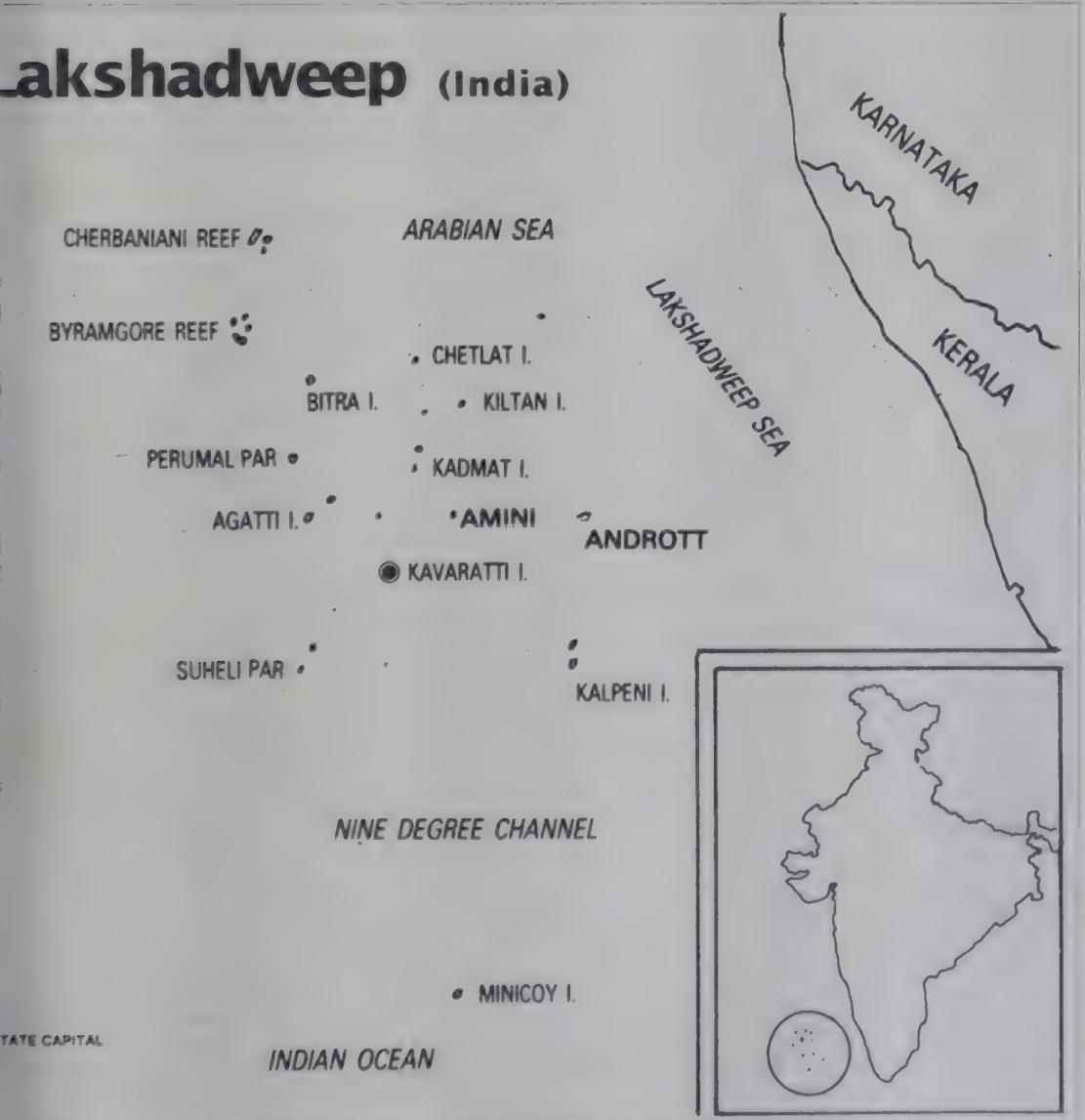
marine life is quite elaborate. The com-
seen vertebrates are cattle and poultry.
ic birds generally found are tharathasi
a fuscata) and karifetu (Anous stolidus).
are generally found in one of the unin-
d islands known as Pitti. This island has

been declared a bird sanctuary.

History: Early history of Lakshadweep is not
recorded. Local traditions attribute the first
settlement on these islands to the period of
Cheraman Perumal, the last king of Kerala. It is
believed that after his conversion to Islam, at
the behest of some Arab merchants, he slipped
out of his capital Cranganore, the present day
Kodungalloor and an old harbour town near
Cochin, for Mecca.

The search parties from different places left
for the shores of Mecca in sailing boats in search
of the king. It is believed that one of these sailing
boats of the Raja of Cannanore was wrecked.
After being tossed for many days in the Arabian
Sea, they finally landed on the island now kno-

Lakshadweep (India)



wn as Bangaram. Finally they returned to the mainland sighting other islands on their way. It is said that after their return, another party of sailors and soldiers were sent and they discovered the island of Amini and started living there.

There are communities who are primarily land owners (Koyas), sailors (Malmis) and cultivators (Melacheris). Legends say that small settlements started in the islands of Amini, Kavaratti, Andrott and Kalpeni first and later people from these islands moved to the other islands of Agatti, Kiltan, Chetlat and Kadmat. This legend of Cheraman Perumal is not, however, fully substantiated.

The advent of Islam dates back to the 7th century around the year 41 Hijra. Saint Ubaid-ulla is believed to have preached Islam to the islanders. The grave of Saint Ubaidulla in Andrott is today a sacred place. Preachers from Andrott are respected deeply in far off lands like Sri Lanka, Malaysia and Burma.

After the conversion of the entire Islands to Islam, the sovereignty remained in the hands of the Hindu Raja of Chirakkal for some more

years. From the hands of the Chirakkal Raja administration of the islands was passed to the Muslim house of Arakkal of Cann around the middle of the 16th century. In the English took over all the islands.

The Union Territory was formed in 1956 it was named Lakshadweep in 1973 (old name: Laccadives).

Administration: Prior to the formation of this Union Territory on November 1, 1956, these islands formed part of the erstwhile Madras State. The entire group of islands is considered one district and divided into four taluqs and each put in charge of a Tahsildar, Minicoy where the post of the Tahsildar was abolished and a Deputy Collector appointed in August, 1978. The lowest revenue official was known as Amin in the Laccadive group, Minicoy and Karani in the Amindivi group; they are designated Amin in all islands.

The headquarters of the Administration shifted from Calicut (Kerala) to Kavaratti in, 1964.

Illiteracy among SC/STs

The majority of the population belonging to the scheduled castes (SC) and scheduled tribes (ST) are illiterate even today, says Dalit Shiksha Andolan (DSA), a voluntary educational action group working for the welfare of SC/STs.

The findings of 'Dalit data bank' prepared by DSA reveal that in spite of welfare schemes, provisions of reservations in jobs and educational institutions, the majority of SC/ST population in India are victims of highest drop-out rates. The 'empowerment of weaker sections' has not helped to bring about much improvement in the state of SCs and STs in the field of education. Most of them remain distant from privileged institutions of higher education.

Millions of SC/ST children never enter schools.

According to DSA, 62.60 per cent SC and 70.4 per cent ST population are illiterate, as per 1991 census.

"Selected educational statistics" (1992-93), released by the ministry of human resource development (HRD), says 49.62 per cent SC and 64.53 per cent ST school-going children drop out at the primary level itself, and 79.88 per cent SC and 86.72 per cent ST students drop out by the time they reach higher secondary stage.

The 1992-93 report of HRD ministry said, the number of SC/ST students was 26.45 lakhs at higher secondary stage. In the same year the

number came down to 10.33 lakhs at intermediate level, and 4.33 lakhs at graduation level. 42.77 thousand SC/ST students enrolled for post graduation and higher research in the year, says Mr. Chandra Bhan Prasad, DSA president, quoting figures from government report National Sample Survey (NSS) 42nd round (1986-87), has examined the reasons for enrolment of children aged six years and of all social groups.

Referring to the findings of NSS Mr. Prasad says 29.46 per cent children do not enrol due to lack of interest, 12.98 per cent due to non-participation in household economic activity, 26.59 due to other economic reasons, 10.0 per cent due to non-availability of schools and 11.97 per cent due to attending domestic chores.

On the whole 85.70 per cent children do not enter schools due to their specific socio-economic handicaps. The same report shows that 83.71 per cent children drop out of school due to similar socio-economic handicaps.

Mr. Prasad described "free education" for SC/ST students as a farce. The increase in matric scholarship (PMS) awarded in the last few decades has not been commensurate with the increase in prices over the years. He said there has been a steady decline in the amount of PMS granted as PMS for SC/ST students over the

Islands (Inhabited)	Area (sq km)	Population (1991)
Ami	4.4	8,323
Andrott	2.3	4,079
Chetlat	4.8	9,149
Kadmat	2.7	5,667
Kavaratti	3.6	8,684
Minicoy	2.6	6,445
Neelam	3.1	3,983
Ormat	1.6	3,075
Thiruvananthapuram	1.0	2,050
Other	0.1	226
Total		51,681

State of Economy: Agriculture is the mainstay of Lakshadweep's economy. Coconut production has increased from 24.5 m nuts to 25.5 m nuts in 1990-91.

Fruit plants like banana, papaya, guava, sapota, citrus varieties and drumstick plants are cultivated in the coconut gardens as inter-crops. Agricultural Demonstration Farms of the Government in all islands supply vegetables to the people.

The islands produce copra, coir, jaggery, sugar and fish. Trade in coir is a monopoly of the Government Administration and is being carried on as a business measure on a no-profit-no-loss basis, by selling rice for coir. The average copra production is about 2500 tonnes per annum, of which 2000 tonnes is sold through Calicut and Bangalore markets.

The islands have immense potential for the development of fisheries. Two boat building workshops are engaged in the construction of mechanised boats. Over 331 mechanised boats are under operation in Lakshadweep waters, of which 313 were issued to the fishermen under a lease purchase system at subsidised cost. Fish production during 1993-94 is estimated at 8000 tonnes. The canning factory at Minicoy possesses a fish.

There are 14 factories under the Industries Department and 139 private small scale industries. The main household industry is coir spinning. Ten coir production-cum-demonstration centres are operating at Kadmat, Chetlat, Minicoy, Agatti and Andrott. These centres produced 20.2 tonnes of improved variety thin coir during 1988-89. The mechanised decortication units at Andrott, Kadmat, Ameni and Kavaratti extracted 161.5 tonnes brown fibre from dry coconut husk during 1988-89. The coir factory at Kalpeni produced 38,810 tonnes during this period. The Handicraft Training centres at Kavaratti is continuing to impart training to local candidates in marketing coir shell crafts, coir crafts etc. One Furniture-

Makers Industrial Co-operative Society and one Handicraft Industrial Co-operative Society are also functioning at Kavaratti. Two Coir Co-operative societies have been started at Ameni and Kalpeni with trained local women as members. A Vanita TV Assembly Co-op. Society established in 1988.

Educational institutions include a Navodaya Vidyalaya, an IGNOU study centre and an ITI.

Tourist Centres: Cheriya, Suheli, Valiyakara and Tinakara have been identified for international tourism.

During 1989-90, 2,589 tourists visited the islands. As on 31st March 1988 there were 24 family huts, 5 beach resorts, 5 bathing huts, two honeymoon huts and one youth hostel for tourists. During 1988-89 436 foreign tourists and 1868 main land tourists visited these islands.

Agatti near Bangaram was put on the air map in April, 1988 when Vayudoot service from the mainland was inaugurated.

A Rs. 15 lakh aquarium-cum-museum was opened in Kavaratti by the President R. Venkata-ra-man in 1989.

Society for Promotion of Recreational Tourism (SPORTS) was established for the development of tourism.

On November 26, 1990 Lakshadweep Islands Division Post Office was inaugurated.

Information and publicity department units are operating in all the inhabited islands except Bitra. The government is publishing a daily newspaper in Mahal and a weekly in Malayalam and English.

Administrator: G.S Cheema.

Pondicherry

Area: 492 sq km; **Capital:** Pondicherry; **Languages:** Tamil, Telugu, Malayalam, English and French; **Districts:** 4; **Population:** 789,416; **Males:** 398,324; **Females:** 391,092; **Increase in (1981-91):** 184,945; **Growth Rate (per cent) 1981-91:** 30.60; **Density (persons per sq. km.):** 1,605; **Urban Population:** 64.00%; **Sex Ratio (females per 1000 males):** 982; **Literacy:** 74.91%; **Males:** 83.91; **Females:** 65.79; **Per capita income:** Rs. 5,637 (1989-90). **1991 census final population total:** 807,785.

Physiography: The Union Territory of Pondicherry encompasses an area of only 492 sq km with Pondicherry town and its villages covering 293 sq km surrounded by the South Arcot District, Karaikal town and its villages covering 160 sq km surrounded by Thanjavur District, Mahe and its villages covering 9 sq km surrounded by the Kerala State, and Yanam covering 30 sq km within the East Godavari District in Andhra Pradesh. While Pondicherry,

the headquarters of the Union Territory, lies 162 km south of Madras and 22 km north of Cuddalore, Karaikal is about 150 km south of Pondicherry and Yanam about 840 km north-east of Pondicherry on the Andhra Coast. Mahe lies almost parallel to Pondicherry, 653 km away on the west coast.

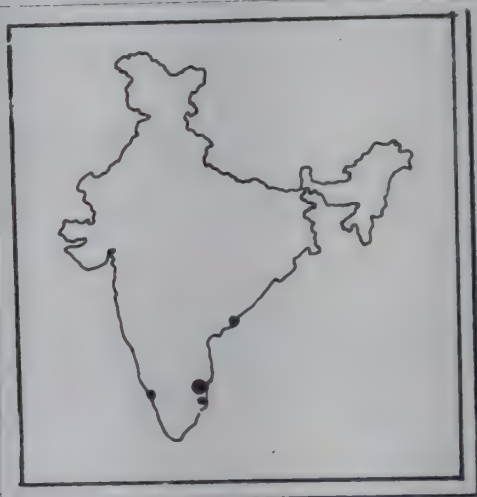
The French first established their foothold in Pondicherry in 1673; Karaikal was obtained from the King of Thanjavur in 1738. Mahe was handed over to the French by the ruler of Badagara in 1721. Yanam came into their possession in 1731.

Pondicherry and its surrounding enclaves lie on the drainage basin of the Gingee river. Karaikal located in the fertile Cauvery delta is fed by the

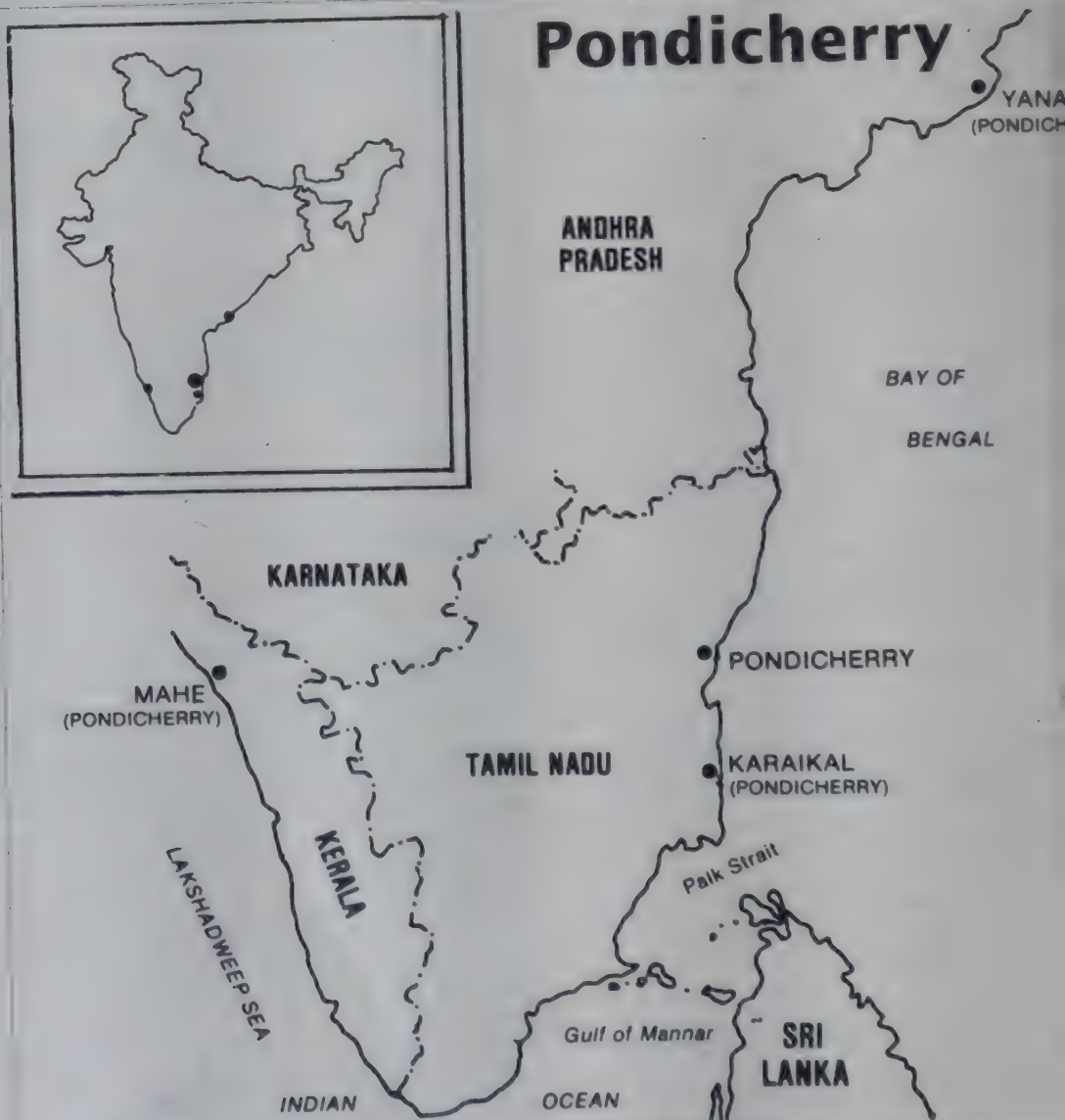
waters of Arasalar (running a distance of km in the region), Natter (11.2 km), Van km), Nular (13.77 km), Puravadaiyaran (5. Thirumalirayanar (5.13 km) and the Nar (15.15 km).

River Mahe forms the northern bound Mahe town separating it from the encla Kallayi and Naluthara on the north. The Co river, which is a branch of Gautamin G river flows through the town of Yanam.

History: Pondicherry entered modern when the French East India Company estab a settlement there in 1673. The French con this obscure little village into a flourishing ing centre. The French were the last Europ wer to come to India for trade. The Dutch a



Pondicherry



had already established themselves at centres in India. The Dutch were the first to trade with the French. They captured Pondicherry in 1693 but returned it to France by the Treaty of Ryswick in 1699. Pondicherry found its prosperity in a few years. In 1706 Pondicherry had a population of 40,000 while the town of Calcutta had barely 22,000.

In the meantime, the French East India Company had run into financial difficulties and the company was forced to abandon their trading posts at Bantam, Surat and Masulipatnam. In 1719 the Company was reconstituted as the French East India Company and new French establishments sprang up in the East. Mauritius was occupied in 1721, Mahe on the Malabar coast in 1721, Yanam in 1731 and Karaikal in 1731. In 1762, with the appointment of Dupleix as Governor of Pondicherry in 1742 France became involved in Indian politics. Dupleix harboured ambitions of establishing a French Empire in India.

At last British paramountcy was established in India, Pondicherry ceased to be of any importance and the British let the territories continue in their possessions in India. The French Government handed over the Administration of their territories in India to the Government of independent India in November 1954. The territories thus handed over were constituted into the Union Territory of Pondicherry.

Administration: Pondicherry is administered by the President through a Lt. Governor advised by a Council of Ministers which is responsible to the Legislative Assembly, consisting of 33 members. Normally the Council of Ministers under a Chief Minister carries on the administration directly.

	Area (sq km)	Population '91	Headquarters
Karaikal	160	145,715	Karaikal
Mahe	9	33,404	Mahe
Pondicherry	293	590,000	Pondicherry
Yanam	30	20,297	Yanam

of Economy: Nearly 45% of the population is engaged in agriculture and allied pursuits. Nearly per cent of the cultivated area is under paddy. The main food crop is rice. Foodgrain production ('92-93) is about 116,000 tonnes. There are 21 large and 57 medium scale industries manufacturing items like Textiles, Cotton Yarn, Spirits and Beer, Potassium, Rice Bran Oil, Auto parts, Soap, Amino Acids, Disposable Syringes, Red Moulded Sheets, Plastic Filaments, Hard Gelatin Capsules, Sewing/Washing Machines, Glass and Tin

Mahe and the French

With the resolution by the Pondicherry Assembly demanding the granting of special statehood status to the Union Territory, Mahe is in the news.

Mahe's status is likely to continue as it is, that is as a revenue district of Pondicherry because of its historical links with France, though there was a demand sometime ago that Mahe should form part of Kerala.

Mahe has a colourful history. It is known after the French Naval Captain Mahe De Labourdonnais under whose command the French captured this tiny coastal town.

The French left Mahe on July 16, 1954 after 233 years' rule. In 1962, four erstwhile French settlements were merged in the Union Territory of Pondicherry. That was the end of the period of history of Mahe beginning in 1721 when Mollandin, representative of the French East India Company, landed in Mahe and set up a trading centre.

It was the liberation of the British India in 1947 that roused the nationalist sentiments among the people of Mahe, resulting in the Mahe rebellion of 1948. A second wave of revolt occurred in 1954, the last year of French rule in Mahe.

There are still about 150 French citizens of Indian origin in Mahe. They receive monthly pensions from the French Government.

Containers, Bio Polymers, etc. There are 4,455 small scale industries. All these generate employment opportunities to 45,272 persons. Total road length is about 600 km.

The nearest main airport is Madras.

Tourist Centres: Pondicherry is a living monument of French culture in India. There are over 14,000 French nationals in Pondicherry.

Among the places of interest are Sri Aurobindo Ashram, Government Museum, Bharathi & Bharathidasan Memorial Museum, Government Square, Botanical Garden, French Institute, Sacred Heart of Jesus Church, Joan of Arc, Manakula Vinayagar Temple, Ananda Rangapillai Mansion, Auroville and Boat Club at Chunnambar river.

Pondicherry Tourism has introduced a package of holiday and adventure sports.

The part of the Pondicherry Union Territory called Karaikal lying in an enclave of Tamil Nadu about 130 kms south, has got important places such as Arasalar Boat Club, Thirunallar Saneeswar Temple and Karaikal Ammaiyar Temple.

Lt. Governor: Mrs. Rajendra Kumari Bajpai;
Chief Minister: V. Vaithilingam.

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Rajendra Prasad	: 1950-1962
Varvepalli Radhakrishnan	: 1962-1967
Zakir Husain	: 1967-1969
Chagiri Venkata Giri	: May-July, 1969 (Acting)
Muhammad Hidayatullah	: July-Aug., 1969 (Acting)
Chagiri Venkata Giri	: 1969-1974
Ferozuddin Ali Ahmed	: 1974-1977
Neelam Sanjiva Reddy	: Feb.-July, 1977 (Acting)
Zail Singh	: 1977-1982
Chakravarthi Rajagopalachari	: 1982-1987
Chakravarthi Rajagopalachari	: 1987-1992
Chakravarthi Rajagopalachari	: 1992-Till date

Ex-Presidents

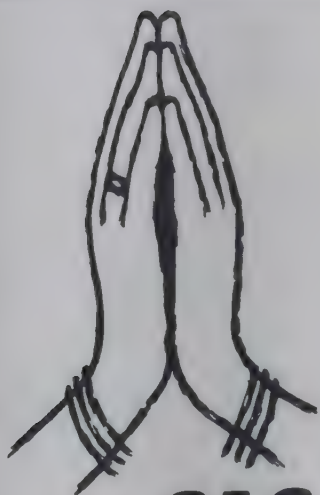
Varvepalli Radhakrishnan	: 1952-1962
Zakir Husain	: 1962-1967
Chagiri Venkata Giri	: 1967-1969
Chakravarthi Rajagopalachari	: 1969-1974
Neelam Sanjiva Reddy	: 1974-1979
Muhammad Hidayatullah	: 1979-1984
Chakravarthi Rajagopalachari	: 1984-1987
Chakravarthi Rajagopalachari	: 1987-1992
Chakravarthi Rajagopalachari	: 1992-Till date

Prime Ministers

Jawaharlal Nehru	: 1947-1964
Lal Bahadur Shastri	: May-June, 1964 (Acting)
Lal Bahadur Shastri	: 1964-1966
Lal Bahadur Shastri	: 11-24, Jan., 1966 (Acting)
Indira Gandhi	: 1966-1977
Morarji Devers	: 1977-1979
Indira Gandhi	: 1979-1980
Indira Gandhi	: 1980-1984
Indira Gandhi	: 1984-1989
Chandrababu Naidu	: 1989-1990
P. V. Narasimha Rao	: 1990-1991
P. V. Narasimha Rao	: 1991-Till date

Makers of the Lok Sabha

Shri Vasudeo Mavankar	: 1952-1956
Shri Manthasayanam Ayengar	: 1956-1962
Shri Hukum Singh	: 1962-1967
Shri Sanjiva Reddy	: 1967-1969
Shri Dhayal Singh Dhillon	: 1969-1975
Shri Ram Bhagat	: 1976-1977
Shri Sanjiva Reddy	: Mar.-July, 1977
Shri P. V. Sadananda Hegde	: 1977-1979



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ram Jakhar	: 1980-1989
bi Ray	: 1989-1991
vraj Patil	: 1991-Till date

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ilal J. Kania	: 1950-1951
Patanjali Sastri	: 1951-1954
ar Chand Mahajan	: 1954-1954
K. Mukherjea	: 1954-1956
. Das	: 1956-1959
ivaneshwar Prasad Sinha	: 1959-1964
Gajendragadkar	: 1964-1966
. Sarkar	: Mar.-June, 1966
ubba Rao	: 1966-1967
. Wanchoo	: 1967-1968
Hidayatullah	: 1968-1970
. Shah	: 1970-1971
. Sikri	: 1971-1973
. Ray	: 1973-1977
. Baig	: 1977-1978
. Chandrachud	: 1978-1985
. Bhagwati	: 1985-1986
. Pathak	: 1986-1989
. Venkataramiah	: June-Dec., 1989
yasachi Mukherjee	: 1989-1990
ganath Mishra	: 1990-1991
. Singh	: 1991-1991
. Kania	: 1991-1992
t Mohan Sharma	: Nov.1992- Feb.1993
epalli Narayanrao Venkatachalliah	: Feb. 1993-1994
z Mushabber Ahmed	: Oct.1994- till date

Chief Election Commissioners

umar Sen	: 1950-1958
. K. Sundaram	: 1958-1967
. Sen Verma	: 1967-1972
Nagendra Singh	: 1972-1973
waminathan	: 1973-1977
. Shakdhar	: 1977-1982
. Trivedi	: 1982-1985
. S. Peri Sastri	: 1985-1990
. Sheshan	: 1990-Till date

Chiefs of Army Staff

eral Maharaj Rajendra Sinhji	: Apr.-May, 1955
eral S. M. Srinagesh	: 1955-1957
eral K. S. Thimayya	: 1957-1961
eral P. N. Thapar	: 1961-1962
eral J. N. Chaudhuri	: 1962-1966
eral P. K. Kumaramangalam	: 1966-1969
eral S. H. F. J. Manekshaw	: 1969-1972
d Marshal S. H. F. J. Manekshaw	: 1972-1973
eral G. G. Bewoor	: 1973-1975
eral T. N. Raina	: 1975-1978
eral O. P. Malhotra	: 1978-1981
eral K. V. Krishna Rao	: 1981-1983
eral A. S. Vaidya	: 1983-1986

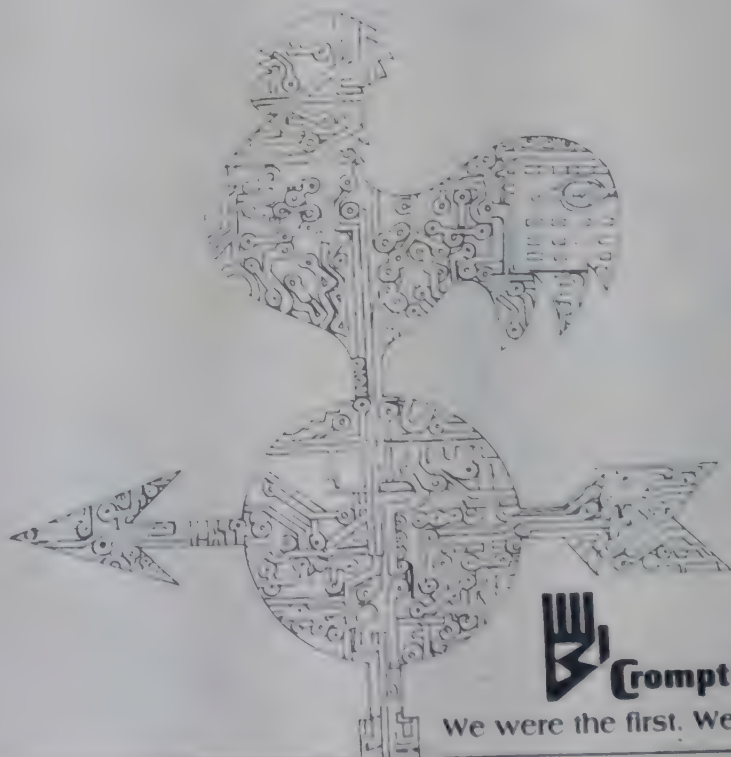
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Chiefs of Naval Staff

Chief Admiral R. D. Katari	: 1958-1962
Chief Admiral B. S. Soman	: 1962-1966
Chief Admiral A. K. Chatterjee	: 1966-1970
Chief Admiral S. M. Nanda	: 1970-1973
Chief Admiral S. N. Kohli	: 1973-1976
Chief Admiral J. L. Cursetji	: 1976-1979
Chief Admiral R. L. Pereira	: 1979-1982
Chief Admiral O. S. Dawson	: 1982-1984
Chief Admiral R. H. Tahiliani	: 1984-1987
Chief Admiral J. G. Nadkarni	: 1987-1990
Chief Admiral L. Ramdas	: 1990-1993
Chief Admiral Vijay Singh Shekawat	: Sept. 1993-Till date

Chiefs of Air Staff

Chief Marshal Sir Thomas Emhirst	: 1947-1950
Chief Marshal Sir Ronald Lvelaw Chapnam	: 1950-1951
Chief Marshal Sir Gerald Gibbs	: 1951-1954
Chief Marshal S. Mukherjee	: 1954-1960
Chief Marshal A. M. Engineer	: 1960-1964
Chief Marshal Arjan Singh	: 1964-1969
Chief Marshal P. C. Lal	: 1969-1973
Chief Marshal O. P. Mehra	: 1973-1976
Chief Marshal H. Moolgavkar	: 1976-1978
Chief Marshal I. H. Latif	: 1978-1981
Chief Marshal Dilbagh Singh	: 1981-1984
Chief Marshal L. K. Katre	: 1984-1985
Chief Marshal D. A. La Fontaine	: 1985-1988
Chief Marshal S. K. Mehra	: 1988-1991
Chief Marshal N.C. Suri	: 1991-1993
Chief Marshal Swarup Krishan Kaul	: Aug. 1993-Till date
Chief Marshal Satish Kumar Sareen to take over on Jan. 1, 1996.	

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Mr. Manmohan Singh	: Minister of Finance and Member
Mr. Balram Jakhar	: Minister of Agriculture and Member
Mr. Ram Singh Yadava	: Minister of State for Planning & Programme Implementation and Ex-officio Member
Mr. (Mrs) Chitra Naik	: Member
Mr. D. Swaminadhan	: Member
Prof. J.S. Bajaj	: Member
Mr. Jayant Patil	: Member
Mr. S.Z. Qasim	: Member
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Singh Minister of Food Residence: 18, Akbar Road, New Delhi	3383112 3382760	3792040
Sam Jhakar Minister of Agriculture Residence: 11, Race Course Road, New Delhi	3782691 3017952	3792668 3019916
Sam Singh Minister of Civil Supplies, Consumer Affairs and Public Distribution Residence: 16, Ashoka Road, New Delhi	3382756 3385723	3755411 3018716
Pranab Kumar Mukherjee Minister of Labour Residence: 2, Jantar Mantar Road, New Delhi	3717515 3710240	3782089 3782473
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Manmohan Singh Minister of Rural Areas and Employment Residence: E-315, Greater Kailash Part-II, New Delhi-48	3782373 3782327	6473378
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Am Lakhan Singh Yadav Minister of Chemicals & Fertilisers Residence: 9, Pant Marg, New Delhi	3384196	3711404 3718235
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Indiyacharan Shukla Minister of Water Resources and Parliamentary Affairs Residence: 9, Janpath, New Delhi	3714643 3017798	3016463 3013883
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Giridhar Gamang Minister of State (indep. charge) of the Ministry of Mines Residence: 108, V.P.House Rafi Marg, New Delhi	3381280 3385844	3717768 3755432
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Kamal Nath Minister of State (indep. charge) of the Ministry of Textiles Residence: 7, Tughlak Road, New Delhi	3013779 3016385	3792233 3792234
K.P.Singh Deo Minister of State (indep. charge) of the Ministry of Food Processing Industry Residence: 4, Lodi Estate, New Delhi-3	3711687 3717966	4610977

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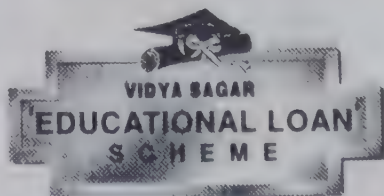
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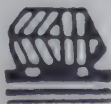
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Party Position

Sabha as on August 31, 1995

Name of Party/Group	Strength	Leader
Indian National Congress	257	Shri P.V. Narasimha Rao
Janatiya Janata Party	117	Shri Atal Bihari Vajpayee
Communist Party of India (Marxist)	36	Shri Somnath Chatterjee
Janata Dal	23	Shri Sharad Yadav
Communist Party of India	14	Shri Indrajit Gupta
Janata Party	14	Shri Chandrajeet Yadav
Dr. B.R. Ambedkar Anna Dravida Munnetra Kazhagam	12	Shri P.G. Narayanan
Janata Dal [A]	*10	
Telugu Desam Party	7	Shri Sobhanadreeswara Rao
Uttarakhand Mukti Morcha	6	Shri Shibu Soren
Revolutionary Socialist Party	4	
Dr. B.R. Ambedkar Forward Block	3	Shri Chitta Basu
Bahujan Samaj Party	3	Shri Kanshi Ram
Samajwadi Party	3	Shri Ram Sagar
Uttar Pradesh Sahasra	2	Shri Moreshwar Save
Muslim League	2	Shri Ebrahim Sulaiman Sait
Janata Party	1	Shri Chandra Shekhar
Congress (S)	1	Shri K.P. Unnikrishnan
Dr. B.R. Ambedkar Majlis-E-Ittehadul Muslimeen	1	Shri Sultan Salahuddin Owaisi
Autonomous State Demand Committee	1	Dr. Jayanta Rongpi
Assom Gana Parishad	1	Shri Muhi Ram Saikia
Kerala Congress [M]	1	Shri P.C. Thomas
Manipur People's Party	1	Shri Yaima Singh Yumnam
Sikkim Sangram Parishad	1	Smt. Dil Kumar Bhandari
Independents	3	
Nominated	2	
Vacancies	18	
	544	[Excluding H.S.]

Includes 7 members sitting separately consequent on receipt of intimation from them.

Sabha as on November 1, 1995

Uttar Pradesh [I]	¥89	Telugu Desam-II @	1
	45	Hill State People's Democratic Party	1
Janata Dal	28	Nagaland People's Council	1
[M]	13	Kerala Congress [M]	1
D.M.K.	11	Sikkim Sangram Parishad	1
	5	Bahujan Samaj Party	1
Janata Dal [S]	5	Independents	8
Samajwadi Party	5	Nominated	**4
	4	Vacancies	8
Janatiya Janata Dal	3	[J&K 4	
Telugu Desam-I @	3	Nominated 4]	
Muslim League	2	Total	245
Forward Block	2		
Assom Gana Parishad	2		
	1		
Uttar Pradesh	1		

* Including four nominated Members

@ Strictly for limited purpose of functioning in the House;

** Excluding four Members who belong to Congress [I]

Party

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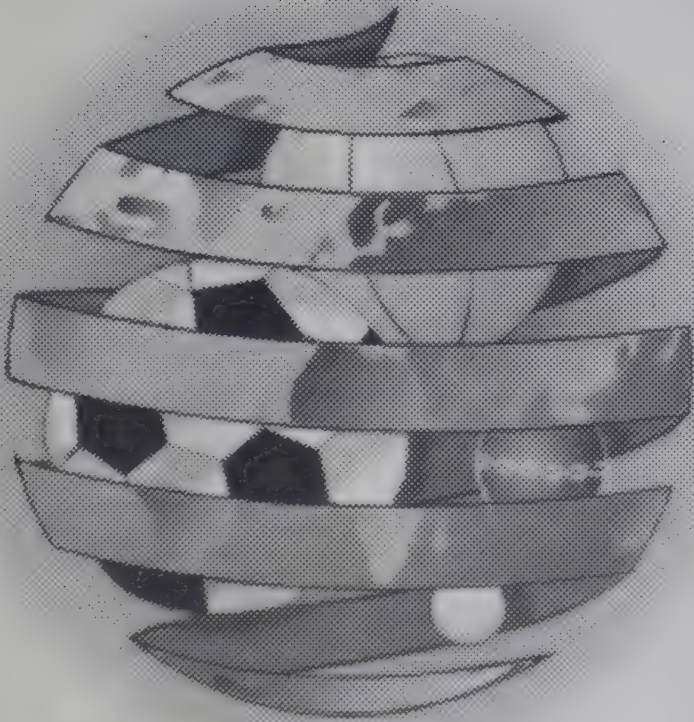


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PART FIVE



WORLD

OF

SPORTS

Olympic information pack

When the International Olympic Committee, that much revered and often criticised body which controls the biggest sporting gathering of the world, decided to give to Atlanta, sometimes referred to as the City of Coca Cola, the honour of hosting the 1996 Olympics in the year marking the centenary of the first modern Olympics, there was mixed reaction. For one of the main rivals and sentimental favourites was Athens, the venue of the first modern celebration on 1896, but the clout of big money and temptations of ultra-modern technology and facilities which Atlanta promised tilted the balance in favour of an American city for the second time in 12 years - Los Angeles had hosted games as recently as 1984.

But now, with just over six months to go, the capital of the state of Georgia resembles a huge construction site. It hardly looks the place that the world will descend on from the middle of July.

Atlanta's supporters claim that the city has the capacity to pull itself up when faced with a challenge. Once a not too-well known dusty provincial town, Atlanta has in the past few decades, grown into one of the most important economic centres of the United States of America.

Millions of dollars have been sunk into preparing the city, new trees have been planted to give it green look and the locals hope these Games will turn their city into an international metropolis capable of competing with the very best in the world.

Contrary to popular belief, that the Games have little problem regarding finances, the organisers feel that there is a big burden despite the presence of Coca-cola and Cable News Network (CNN), two of the world's best known companies and giants among the 500-odd leading companies represented in Atlanta.

In November, less than nine months before the Games, the men entrusted with the financial side of the games felt that they were far short by six per cent of the budget for the event which is \$1.6 billion. The financing of the Olympic Games occupies us long.



Atlanta 1996

TM © 1992 ACOG

the games are occupied us long. said Bob Brennan, press chief of Atlanta's Olympic Organising Committee (ACOG), in a meeting in Atlanta.

Back in 1984, Ueberroth, the man who ran the show in the Los Angeles Olympics, showed how the Games could be financed by private raised money. At the end of the event he showed substantial profits and the ACOG

organisers are hoping to emulate that feat.

In modern times, the biggest revenue grosser is television and for Atlanta the network alone has paid \$ 456 million. Starting from that, the organisers hope not only to break even but also show profits from sale of broadcasting rights, ticket sales, through sponsorship and the marketing of Olympic souvenirs such as clothes, watches, pins, umbrellas and other items.

ACOG believes the United States will attract about two million tourists to the strength of the Olympics alone and the benefits could continue. As for the appeal of the Games, the figure envisaged by Brennan is about two-third of the population of the world. They will get to see the Games either in full or part on television. The

e Games is going to be the new Olympic
um being built in downtown area at the
of \$ 209 million and it can hold about
00 spectators.

me of the stadia like the tennis venue, 25
way near the Stone Mountains, are behind
dule, but the officials claim that work will
n a war-footing as time approaches and
ything will be in place.

at has always been the case with big events,
h when faced with tight time schedules do
ge to deliver on time, though they may
etimes cut it rather fine.

Light Security Expected: Ever since a bunch
k September Palestinian terrorists attacked
Olympic village and killed 11 Israeli athletes
coaches at the Munich Games in 1972,
rity has become a way of life at the Olym-
It is one memory that sporting fraternity
nd the world would like to forget and make
that it never happens again.

ue, Olympics have often been the platform
political statements to be made - the best
wn of them all being the Black Power salute
68, but violence of the nature that was to
en in Munich four years later was something
ne could even imagine.

or, even in the days of the ancient Olympics,
wo week celebration would bring all hos-
es to a halt.

ut times have changed and it is large
rings like Olympics that have been threat-
l most but once inside the village, the hub
l activities and inter-action between ath-
s from all over the globe, it is amity.

at the recent past, the United States has been
target of some terrorist attacks, the most
minent one being the Oklahoma bombing
blasts at the World

le Centre. With that
mind, it is little
der that the Atlanta
mpics will see one
he biggest security
rations in the his-
of America.

According to the of-
fials of the Atlanta
anisers, the FBI and
are working to-
ner to deal with
stantial threats to
urity at the Olym-
s. The CIA will be
king into all poten-
areas of threat from
orists and FBI will
ollowing on them.

s of now, the offi-
s are satisfied with

their preparations, according to deputy At-
torney General Jamie Gorelick in recent news
reports from Atlanta. She was quoted saying,
"I am comfortable that we are on target for the
substantial security challenges that we face
there," she said in response to a question.
Gorelick is the no. 2 official at the Justice
Department, which has authority over the
FBI.

Also on the job is Jeffrey Smith, the CIA's
general counsel, who recently said, "The CIA
has experience in infiltrating terrorist groups
outside the United States, and is helping the
FBI in order to protect American citizens and
American lives at the Atlanta Olympics."

As is only to be expected, officials have
refused to comment on the level of threat to
the Olympics compared with that for previ-
ous games. It is believed that domestic ter-
rorist activities which have increased in
recent years are also worrisome for the secu-
rity officials.

Looking out for the dopes: Learning its
lessons from the 1988 Seoul Olympics, where
positive tests on a host of Bulgarian weightlifters
and Ben Johnson which made the entire Olym-
pic community hang its head in shame, the
Atlanta organisers have prepared themselves
for what if the strictest anti-doping programme
in international sports. And they are spending
huge amounts for it.

The US Olympic Committee has set up a new
task force which will finalise the out-of-competi-
tion drug-test plan by April, 1996.

The USOC is expected to pick up the ex-
penses which can run up to \$ 3 million.

The proposed package would require Ameri-
can athletes to submit to random, short-notice



Olympic Stadium, Atlanta

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g tests away from competition and training
es before they could be eligible for Olympic
ms.

The short-notice test, which also could be
nducted at some USOC events, would be in
dition to the committee's existing series of
ping exams, Schultz said. Anti-doping
grammes currently make up about \$ 6
llion of the USOC's \$ 415 million four-year
dget.

Short-notice doping exams cost about \$ 1,000
iece.

The USOC also wants to eliminate any possi-
ity of medal-stand protests if the Chinese
immers beat the Americans or others. Shaun
rdan, an American gold medallist in relay in
88 and 1992 suggested the swimmers might
ort to some protests if they suspected Chi-
se of doping.

Collecting Olympic Pins

Pin collecting is probably the fastest grow-
ng passion after stamps and coins of the era
behind us. And it is not just kids, who indulge
n it but even grown-ups. At the Los Angeles
Games in 1984, the hobby took off among the
general public as pins produced specifically
or commercial sale became prevalent.

The organisers of the Centennial Games in
Atlanta hope to cash in on by having authorised
licensees to produce 3,000 designs for sale.
Collector clubs have mushroomed and each
week there seems to be a new swap meet,
newsletter or internet trading post.

Atlanta Pin Pals is a club founded by one Bill
Gornto and they have their own designs and
pins for their members. The official club, set
up by the Atlanta organiser, is the Olympic
Games Pin Society and is sponsored by the
Coca-Cola Co. Till November 42,000 people
have paid \$ 19.96 each to join it.

Officials estimate about \$ 10 million worth
of 1996 pins have been sold already till Octo-
ber end and more than twice that amount is
likely to be raised in the months before the Games.
Most pins sell for \$ 5 and are available at most
retail outlets. Pin collectors can be found around
the world, and those who have been to Olymp-
pic Games, know how big the passion is.
Sometimes collectors come to the venue not to
see the Games, but simply to buy new pins,
trade old ones and generally look for some
being given out free.

Satisfying Olympian

Palates: Athletes are a fin-
icky lot. And not just about
their training methods, but
also about their food. Little
wonder then the organisers
of the Atlanta Olympics are
taking no chances for the
15,000 athletes and coaches
from 197 countries who are
expected to stay in the Olym-
pic village.

No, the organisers have not decided to set
197 different menus to suit individual coun-
tries, but have tried to make things as close to
their normal diet as possible. Warm milk, fish
for breakfast, pasta, and so on.

Lew Sprague, the food director and the
man in-charge of feeding the residents in the
Olympics village sees his task as the biggest
challenge he has faced. Sprague, the senior
executive chef at the 1980 Winter Olympics
has made a career of organising food at big
events.

To cater to various kinds of palates, there will
be milk, both warm and cold, fish will be there
cooked, smoked and salted varieties. The bread
basket will have 22 different types and for
Europeans all must be toasted. A choice of 18
fruits per meal will be normal.

The average athletes, during training and
competition, consumes 10,000 calories a day,
compared with 2,500 for the average adult
male, which means the organisers will be buy-
ing by the tonnes, not by pounds.

The most popular item is likely to be pasta,
and about 60,000 pounds of it will be used.

The Village kitchen, as it were, will be at the
80,000-square-foot dining hall which is now
a parking lot at Georgia Tech. It will be open
24 hours a day and staffed by 1,500 people.

Placed alongside hot-food stations, pasta
and salad bars, beverage dispensers and des-
sert tables which will be able to serve up to
1,300 people every 10 minutes during peak
hours will be a small McDonald's restaurant
in one corner.

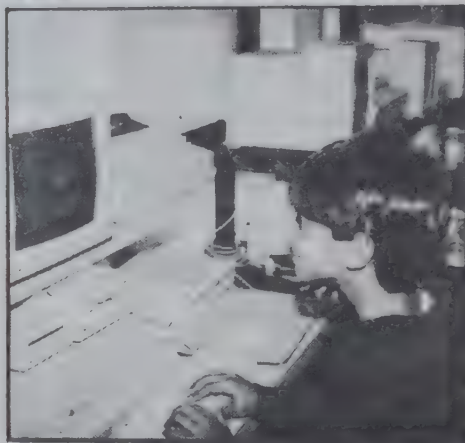
Though the presence of McDonald's, one of
the sponsors, amidst health-conscious Olympi-
ans might amuse many, but in America fast food
is a way of life.

Olympic Tickets: There will be about 11
million tickets on sale for more than 540 events,
which is more than the Olympics of Los Angeles
(1984) and Barcelona (1992) put together, ac-
cording to the organisers.

Since tickets went on sale in May, about 2.7
million tickets have actually been sold and on
top of that are 5.3 million tickets bought under
option, till October.



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Model of the proposed school building.

The prices range from around \$ six for a baseball ticket up to some \$ 650 for a seat at the opening ceremony.

The organisers believe that the tickets will be sold long before the Games open but as of October, rough estimates indicated the tickets were still available for at least field hockey, baseball and soccer. An update released by Atlanta Olympic Organizers in October-November showed that almost three-fourths of tickets have been sold out. Even among disciplines for which tickets are still available, some price categories are sold out. Tickets that have long been sold out already for swimming, badminton, boxing, cycling, fencing, judo, modern pentathlon, table tennis, tennis, weightlifting, wrestling and the opening and closing ceremonies.

Of the 540 ticketed sessions, at least 384 are sold out.

Within the U.S. about 3.2 million tickets out of about 7 million that were made available to the

general public have been sold, which means about half a million of the tickets have been sold since the initial rush of orders, which were subject to a lottery before being filled.

Olympic tickets were made available till end of November and then from December to February there will be no ticket sales, as the organisers plan to offer tickets through telephone services.

Box offices sales will begin only about six weeks before the Games.

Alongside the tickets for the competition, tickets to the much-awaited Arts festival have also been in great demand. More than 50,000 tickets for it have already been sold out.

The Schedule: The very first day of competition will see the Indians get into fray in the contest closest to their heart: men's field hockey, which begins on July 20, a day after the opening ceremony.

Athletics, which is considered the premier event at any multi-discipline Games will get

The Olympic Torch

The Olympic torch, though symbolic in nature has always had great significance attached to it. And it has always been seen as the one to get maximum number of people involved in the Games. Similarly, the organisers and sponsors of the 1996 Atlanta Games have drawn up ambitious plans for the torch ceremony. A 15,000-mile journey through the United States will see more about 7,500 Americans take part in it.

The organisers have planned a scheme called the community Hero Programme, under which 5,500 ordinary citizens whose records of service to others will be used to illustrate the spirit of the Olympics.

The 5,500 will be selected under a programme which is open to anyone 12 or older on April 27 and it allows people to nominate themselves or others for outstanding volunteer work, service as a community leader or role model and other extraordinary accomplishments.

Some committees will be set up to judge the applicants who are required among other things to write a 100-word essay about the qualities of community heroism.

Sponsor Coca-cola have also planned to allow another 2,000 people to join the torch relay that is scheduled to begin next April and transport the Olympic Flame through 42 states from Los Angeles to Atlanta. The soft-drink manufacturers will also select 500 torchbearers from overseas.



In addition, 1,000 Olympians will be recruited as torchbearers by the United States Olympic Committee.

In all about 10,000 torchbearers will participate in the relay, which ends on July 19 when the flame is carried into Atlanta's Olympic stadium during the games' Opening Ceremony.

The torch, which will arrive in Los Angeles from Greece, will be carried across the US by a variety of modes ranging from foot and horse-back to train and wheelchair.

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underway in the second week, starting on July 26 and finish on August 3. Before athletics, it will swimming that will be the centre of attraction in the first week of the Games as the pool will throng with action from July 20 to 26.

The two-week long Centennial games will come to an end with the closing ceremony on August 4.

July 19: Opening ceremony.

July 20: baseball, basketball, boxing, fencing, gymnastics, hockey, judo, shooting, soccer, swimming, volleyball, water polo, weightlifting, wrestling.

July 21: baseball, basketball, boxing, cycling (road) equestrian, fencing, gymnastics (artistic), hockey, judo, rowing, shooting, soccer, softball, swimming, volleyball, water polo, weightlifting, wrestling.

July 22: baseball, basketball, boxing, equestrian, fencing, gymnastics (artistic), hockey, judo, rowing, shooting, soccer, softball, swimming, volleyball, water polo, weightlifting, wrestling, yatching.

July 23: baseball, basketball, boxing, equestrian, fencing, gymnastics (artistic), hockey, judo, rowing, shooting, soccer, softball, swimming, table tennis, tennis, volleyball, volleyball (beach), weightlifting, wrestling, yatching, water polo.

July 24: badminton, baseball, basketball, boxing, cycling (track), equestrian, fencing, gymnastics (artistic), handball, hockey, judo, rowing, shooting, soccer, softball, swimming, table tennis, tennis, volleyball, volleyball (beach), water polo, weightlifting, yatching.

July 25: badminton, baseball, basketball,

boxing, cycling, equestrian, gymnastics (artistic), handball, hockey, judo, rowing, shooting, soccer, softball, swimming, table tennis, tennis, volleyball, volleyball (beach), yatching.

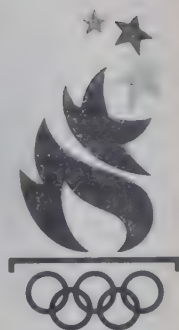
July 26: athletics, badminton, basketball, boxing, canoe/kayak (slalom), cycling, diving, equestrian, handball, hockey, judo, rowing, shooting, softball, swimming, table tennis, tennis, volleyball, volleyball (beach), water polo, weightlifting, yatching.

July 27: athletics, badminton, baseball, boxing, basketball, canoe/kayak (slalom) cycling, diving, equestrian, handball, hockey, rowing, shooting, softball, soccer, table tennis, tennis, volleyball, volleyball (beach), water polo, weightlifting, yatching.

July 28: athletics, badminton, baseball, boxing, basketball, canoe/kayak (slalom) cycling, diving, equestrian, gymnastics (artistic), handball, hockey, rowing, soccer, table tennis, tennis, volleyball, volleyball (beach), water polo, weightlifting, yatching.

July 29: archery, athletics, badminton, baseball, basketball, diving, equestrian, gymnastics (artistic), handball, hockey, softball, table tennis, tennis, volleyball, weightlifting, yatching.

July 30: archery, badminton, baseball, basketball, boxing, canoe/kayak (sprint), cycling (mountain bike), diving, gymnastics (artistic), handball, hockey, modern pentathlon, softball, synchronized swimming, table tennis, tennis,



The Rural Olympics of Kila Raipur

Every year in mid-February, scores of people throng the sleepy village of Kila Raipur, 20 km. from Ludhiana, to show off their prowess at its famous rural sports festival. Vying for the attention of lakhs of villagers are bullock cart races, cock fights, dog races, Nihangs riding two or more horses at a time, wrestling, juggling and many other rustic events. It's nothing short of a 'rural olympics'.

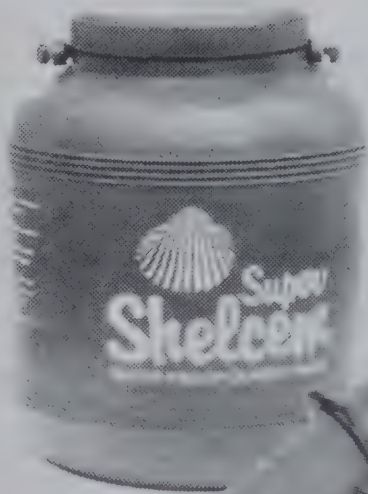
It began 62 years ago, as a small village festival with just two sport. Today the Kila Raipur rural meet is the most prestigious event in the rural sports calender in North India. The success of the meet has spawned a number of similar sports festivals are over the state. The result has been that sporting enthusiasts in the villages are now engaged in

preparing for one or the other meet throuhout the year.

The Kila Raipur festival, the olympics of them all, is organised by the Grewal Sports Association. Even during the turbulent days of terrorism in Punjab, the meet used be held in all its excitement. There was a brief break in 1991 when the festival was cancelled, because a bomb was planted in the stadium just before the inaguration. And, the following year, Kila Raipur witnessed a gruesome massacre.

The meet which began with only rural events, now attract professional teams in mainstream events like hockey, athletics and equestrian. However, the charm of the games still remains in the famed bullock cart races, held in a 33 acre field.

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ball, weightlifting, wrestling, yatching.
August 31: archery, athletics, badminton, basketball, boxing, canoe/kayak (sprint), cycling, diving, equestrian, handball, hockey, judo, table tennis, tennis, volleyball, wrestling, yatching.

August 1: archery, athletics, badminton, basketball, boxing, baseball, canoe/kayak (sprint), diving, equestrian, gymnastics (rhythmic), handball, hockey, soccer, table tennis, volleyball, wrestling, yatching.

August 2: archery, athletics, baseball, basketball, boxing, canoe/kayak (sprint), diving, equestrian, gymnastics (rhythmic), handball, judo, soccer, table tennis, tennis, volleyball, wrestling, yatching.

August 3: badminton, basketball, boxing, canoe/kayak (sprint), cycling (road), equestrian, gymnastics (rhythmic), handball, soccer, tennis, volleyball.

August 4: basketball, boxing, canoe/kayak (sprint), equestrian, gymnastics (rhythmic), handball, volleyball, closing ceremony.

The Olympic Arts Festival: Not only will the world will see finest of sports persons during the two-week long Games, but there will be a unique two-month long Olympic Arts Festival to celebrate the Centennial Games.

Some of the world's best actors, dancers, musicians and playwrights will be featured in the festival, which will run from June 1 to August 4, 1996.

Some of highlights of the festival will be a play about the great boxer Muhammed Ali, which is choreographed by his former sparring

partner, Ron Lipton. The play called 'Ali' was conceived and written by Geoffrey Ewing, who portrays Ali, the former heavyweight world champion and Olympic champion before that, as a protestor to the Vietnam War and shows his memorable fights against Sonny Liston, Joe Frazier and George Foreman. It will be staged from July 25 to 27.

Jazz trumpeter Wynton Marsalis will lead an Olympic Jazz Summit Night in a much touted programme. In all the festival will feature over 50 major pop, rock, country and rhythm and blues acts, more than 20 theatres and dance companies, 25 exhibitions of painting, sculpture, contemporary art and Olympic memorabilia and various orchestra, opera and music performances.

No smoking, please: Smoking is going out of fashion, is what we have been hearing for time now. But the organisers of the Atlanta Games will be doing their bit to hasten its exit. The 1996 Olympics will be a non-smoking one, as smoking in public buildings is banned in Georgia, and the rule applies to sports stadiums as well.

But the organisers, mindful of the foreign visitors, participants and others have decided to set up "Special Smokers' Corners" in the stadiums for the smokers who are being pushed into corners even otherwise. There are many regulations against them in United States, and many have admitting to giving up or trying to give up, because it is becoming "difficult to smoke in peace".

■ **V. Krishnaswamy**
Sports Editor, The Pioneer

The Olympics

1896 Athens	April 6-15
1900 Paris	May 20-Oct. 28
1904 St. Louis	July 1—Nov. 23
1906 Athens	April 22—May 2
1908 London	April 27—Oct. 31
1912 Stockholm	May 5-July 22
1916 Berlin	Not held owing to war
1920 Antwerp	April 20—Sept. 12
1924 Paris	May 4—July 27
1928 Amsterdam	May 17—Aug. 12
1932 Los Angeles	July 30—Aug. 14
1936 Berlin	August 1-16
1940 Tokyo, then Helsinki	Not held owing to war
1944 London	Not held owing to war
1948 London	July 29—Aug. 14

15. 1952 Helsinki	July 19—Aug. 3
16. 1956 Stockholm##	June 10-17
Melbourne	Nov. 22—Dec. 8
17. 1960 Rome	Aug. 25—Sep. 11
18. 1964 Tokyo	Oct. 10-24
19. 1968 Mexico City	Oct. 12-27
20. 1972 Munich	Aug. 26—Sep. 10
21. 1976 Montreal	July 17—Aug. 1
22. 1980 Moscow	July 19—Aug. 3
23. 1984 Los Angeles	July 28—Aug. 12
24. 1988 Seoul	Sep. 17—Oct. 2
25. 1992 Barcelona	July 25—Aug. 7
26. 1996 Atlanta	July 20-Aug. 4

1906 Games held to mark the 10th Anniversary of the modern games but not numbered since it was not held in the four year sequence.

Only the Equestrian events were held here.



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reatest prize in cricket

There is something about the World Cup which inspires the organisers to make it bigger and grander than the last time. The second and sixth edition of the Cup is different from its predecessors as it is being organised by all members of the International Cricket Council (ICC). Joint organisation in the past involved two countries as in 1987 when India and Pakistan got together and then in 1992 when Australia and New Zealand did the honours. But as many as three working together to envisage in the future. India, Pakistan and Sri Lanka have the advantages of proximity, passion and perseverance. Proximity of course is the most important single advantage.

The organising committee is PILCOM (Pakistan India Lanka Committee) and the final to be played in Lahore have to be regarded as a triumph for the Board of Control for Cricket in India (BCCI) was quite willing to make any concession to its country in Pakistan to get the World Cup back to the subcontinent. In India had staged the final and a semi-final and Pakistan had the final. But then India and Pakistan who see eye to eye usually and whose rivalry for the '96 Cup was with Sri Lanka a few eyebrows were not afforded to

be on any point. In fact, the united front the three countries presented at the decisive meeting of the ICC in London to decide the venue of the Cup carried the day much to the chagrin of England. In fact, England and its "allies" in the ICC were looking for cracks, but the officials of the Asian countries had effective answers for parrying and politically slanted questions. Then to boot, the three outbid the others. That as it may the lead up to the Cup, with three countries being beset by complicated problems, was not exactly smooth. Sri Lanka's successive governments have been battling against insurrection for more than a decade and the current government must be anxious that the four league matches scheduled to be played in the island are somehow gone through without any mishap. The troubles between Pakistan and India are too well known but while

the border skirmishes continue and charges of mutual aggression are exchanged regularly, even pessimists, who believed that the whole exercise is a big mistake, have had to admit that it seemed even to them that the governments in the three countries are equally keen, even desperate, that the organisation of the Cup must be a resounding triumph. There is, in fact, the rather ambitious, even exaggerated, notion that the passion for the game in the three countries would ensure that all hurdles are crossed and obstacles surmounted.

This time there are a dozen countries in the fray, three associate members, Kenya, the Emirates and Holland having qualified from the ICC Trophy, and the nine full members (Test playing nations). Group A has India, Zimbabwe, Kenya, West Indies, Australia and Sri Lanka, while Group B, by a quirk of the draw, has all four semifinalists of the last World Cup, England, South Africa,

Pakistan, New Zealand, and two ICC Trophy qualifiers Holland and Emirates. It would not take a great deal of imagination to predict that from Group B the quarter finalists will be the Test nations, though in Group A it could be a toss up between Zimbabwe and Sri Lanka for the fourth quarterfinal place, unless there are a

couple of upsets, especially as India and the West Indies are capable of fluctuating form.

It would be pertinent to remark that the draw is fashioned in a manner in which both India and Pakistan would have to finish strategically in their respective groups in order to avoid a quarterfinal meeting. The last edition of the Cup held in the subcontinent made a mockery of the form book and the bookmakers as India and Pakistan who were expected to play in the final at the Eden Gardens went out in the semifinals. Lahore would be gearing up for such a final but then, who knows? Well, this is the beauty of the sport - its sheer unpredictability.

There are 17 matches in India, 16 in Pakistan and 4 in Sri Lanka. In the league phase Sri Lanka has four of their five games at home and everybody knows how formidable this island team is when backed by a most supportive crowd

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15 (Thu)	South Africa v UAE	Rawalpindi
16 (Fri)	West Indies v Zimbabwe	Hyderabad
17 (Sat)	New Zealand v Holland	Baroda
	Sri Lanka v Australia	Sri Lanka
18 (Sund)	India v Kenya	Cuttack
	England v UAE	Peshawar
20 (Tue)	South Africa v New Zealand	Faisalabad
21 (Wed)	India v West Indies	Gwalior
	Sri Lanka v Zimbabwe	Sri Lanka
22 (Thu)	England v Holland	Peshawar
23 (Fri)	Australia v Kenya	Visakhapatnam
24 (Sat)	Pakistan v UAE	Gujranwala
25 (Sun)	England v South Africa	Rawalpindi
	West Indies v Sri Lanka	Sri Lanka
26 (Mon)	Pakistan v Holland	Lahore
	Zimbabwe v Kenya	Patna
27 (Tue)	New Zealand v UAE	Faisalabad
	India v Australia	Bombay
29 (Thu)	Pakistan v South Africa	Karachi
	West Indies v Kenya	Pune
1 (Fri)	Australia v Zimbabwe	Nagpur
	Holland v UAE	Lahore
2 (Sat)	India v Sri Lanka	Delhi
3 (Sun)	Pakistan v England	Karachi
4 (Mon)	West Indies v Australia	Jaipur
5 (Tue)	South Africa v Holland	Rawalpindi
6 (Wed)	India v Zimbabwe	Kanpur
	Pakistan v New Zealand	Lahore
	Sri Lanka v Kenya	Sri Lanka
9 (Sat)	QF (A3 v B2)	Bangalore
	QF (A1 v B4)	Faisalabad
11 (Mon)	QF (A2 v B3)	Madras
	QF (A4 v B1)	Karachi
13 (Wed)	SF 1	Calcutta
14 (Thu)	SF 2	Mohali
17 (Sun)	FINAL	Lahore

It began The Test and Country Cricket Board (TCCB) then in charge of cricket in England proposed to and had approved by the ICC on June 1973 a proposal to organise a World Cup in involving the six Test playing nations and associate member countries. The two associate members were Sri Lanka and East Africa. In the Prudential World Cup it proved to be immensely popular and a major financial success. Spectators paid £1,88,598 as gate money. Sponsor had polled £100,000, which included £ 9,000 as prize money. The inaugural tournament was blessed by wonderful weather.

The first (1975) The Indian team led by Kapildev has few reasons to remember the first World Cup with any pleasure. The match go-slow in the game against England,

when the opening batsman remained unbeaten with 36 after being in the middle for all the 60 overs, was eminently forgettable. The batsman was made to face an inquiry committee of the Board of Control for Cricket in India but nothing came out of it. However, India's most successful Test batsman never led India in the World Cup, though he played in four.

The West Indies won the tournament most deservedly. They beat Australia in the final by 17 runs and it was a match of great excitement. Skipper Clive Lloyd's superlative century was supported by a masterly controlled effort from the veteran Rohan Kanhai. But while Australia's gifted batsmen seemed equal to the task of chasing 291, they failed to reckon with the throwing arm of Vivian Richards who effected three crucial

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outs, the Chappell brothers and Turner. In the group game between the two rivals there had been an exciting clash between the little Guyanese left-hander Alvin Kallicharran and the Australian pace ace Dennis Lillee. The latter was worsted, going for 35 off 10 balls.

The second (1979) If Ivan Vivian Alexander Richards failed with the bat in the last final, though he had made his presence felt with his fielding, he was most anxious to make up in his second final. The Antiguan, rated unequivocally as the most destructive batsman in the 70s and 80s, was primarily instrumental in ensuring that England had an impossible target in the final, the second in succession to be played at Lord's.

The 'Master Blaster' remained unbeaten with 8 out of the West Indies score of 286 for nine, and he made his runs off 157 balls striking three 6s and 11 4s. He finished the innings with an extraordinary flick off Mike Hendrick into the bound Stand for 6, after having been outpaced by a fifth wicket stand of 139 with Collis King (6). 'Big Bird' Joel Garner with a spell of five for 11 balls destroyed England.

But the West Indies who emerged as the best side in the tourney, had a narrow escape against Pakistan who were 176 for 1 chasing 293. Colin Cowdrey in a spell of three for 4 in 12 balls saved the day. Even in the previous World Cup the clash between the two teams had provided wonderful cricket. West Indies had squeezed through with an unbelievable 10th wicket stand of 64 between wicket keeper Deryck Murray and fast bowler Andy Roberts after having been reduced to 166 for chasing 266. They won with two balls to spare.

The third (1983) While the West Indies figured in its third successive final at Lord's this time it did not win. Underdog India did, and the triumph set off unprecedented celebrations at home. Never was the nation one as on that evening when man of the match Mohinder Amarnath lapped Michael Holding leg before wicket.

The unpredictability of one-day cricket was demonstrated time after time in the third edition of the tourney. But the message that went out loud and clear very early in the exchanges was that the West Indies was not invincible in this format. India posted a league victory though the West Indies soon extracted revenge.

However, it was India's league match against Zimbabwe which had everybody talking. It took place at Nevill Ground in Tunbridge Wells on June 18. Batting first, India was in trouble at a disastrous 17 for 5 with Srikanth, Gavaskar, Amarnath, Patil and Yashpal, all gone. Kapil Dev, the captain, had entered to play himself in quietly. And then unfolded one of the greatest one-day innings of all time as he smashed 175 not out, with six 6s and seventeen 4s. The next best score was an unbeaten 24 by 10th man

Syed Kirmani who helped his captain add a record 126 for the ninth wicket. India totalled 266 and won the match by 31 runs. The Zimbabweans could not believe their eyes.

The innings put the Indians in the mood to conquer. The beating of England in the semifinal by six wickets was done with measured competence. Mohinder Amarnath with 46 and 2 for 27 was the man of the match. But the distinction was to be his in the final too.

Nobody gave India a chance in the final against the West Indies after it was bowled out for 183 in the 55th over. The prominent scorers were Srikanth (38), Sandip Patil (27) and Amarnath (26). But things began to happen soon after Gordon Greenidge completely misread Balwinder Singh Sandhu's inswinger to be bowled neck and crop. It was the wicket of Vivian Richards, already stroking at his imperious best, that India wanted. And Kapil produced a great catch in the deep to see the back of the Master batsman for 33. Thereafter, the West Indies batsmen buckled under the pressure and the accuracy of the Indian bowlers. Amarnath finished with 3 for 12.

It was in this tourney that the West Indian fast bowler Winston Davis took seven (Australian) wickets in an innings. But he did not figure in the final.

The fourth (1987) The first of the World Cups to be held outside England saw Australia emerge finally as a force in this format. True, Australia had figured in the inaugural final but thereafter its performances had been disappointing overall. However, under Allen Border a well knit unit made its presence felt in Indian and Pakistani conditions. Australia clinched a narrow one-run win against India to set the ball rolling.

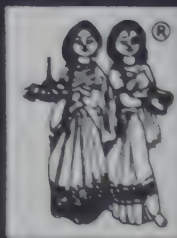
It was a tourney in which quite a bit happened off the field. The West Indian fast bowler Courtney Walsh won encomiums and gifts for his gesture of not running out Pakistani batsman Abdul Qadir at a crucial stage in the clash between the two teams. The batsman had backed up too far but the genial Walsh merely warned him.

England under Mike Gatting played most efficiently. In fact, it was quite clear that the sentimental favourites to figure in the final, India and Pakistan would be sorely pushed. And so it happened.

In the first semifinal between Pakistan and Australia the latter won by 18 runs. Australia batting first made 267 for 8 in its allotted 50 overs in which Mark Waugh produced some wonderful hitting to the consistent performances of those who had preceded him in the line up.

It was a tall order for the home team. Javed Miandad made a subdued 70 and with skipper Imran Khan (58) added 112 for the fourth wicket. But inspired bowling by Craig McDermott (5 for 44) carried the day for Australia. A bitterly

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appointed Imran Khan announced one of his retirements from the game.

The second semifinal between India and England was one-sided with the latter triumphing by 35 runs. A century (115) by Gooch and a fitful association with Mike Gatting. Both did the reverse sweep effectively against the spinners powered England to 254 for 6. Askar fell early, reading the deviation of the ball wrong (almost like Greenidge had read Sandhu) and soon there was desperation in the ranks. Azharuddin made 64, but the one who got into the 20s and two into the 30s failed to carry on.

And so it was a final between England and Australia; the former's second in four tournaments. It was to be unlucky. And skipper Mike Gatting's ill-judged reverse sweep off his opponent Allen Border ensured England fell 7 runs short. It was a wonderful and deserving victory for Australia which had shown itself to be the steadiest and most consistent team in the tournament.

The fifth (1992) Inspired, as also goaded, by the skipper Imran Khan Niazi, Pakistan came on behind to win the cup for the first time after having promised so much in the previous tournaments. The presence of South Africa added a new flavour, though the tourney rules came in for strong criticism, especially the one concerning intervention by rain. In the semi-final against England because of the rain rule or the target score rule South Africa found itself in the impossible situation of having to score 21 runs off one ball. No wonder at the conclusion of the game the England players walked sheepishly off the ground realising that but for the absurdity of the rule they might well have been beaten. Australia was expected to accomplish great things but the team had a poor Cup. In fact, it was co-host New Zealand which experienced a golden run winning seven matches at a trot though all at home, and experimenting with spinner Dipak Patel operating with the new ball. New Zealand's skipper Martin Crowe batted wonderfully and it was a sad to his team come to a stopper against a rejuvenated Pakistan outfit. However the turning point for Imran Khan's team was the washed out league tie against England. Pakistan was bowled out for 74 and England in reply was 24 for 1 in 8 overs. This was March 1. Just three weeks later (on March 22) Imran Khan was holding a lost the World Cup after beating England in the final (its third appearance at this stage in five tournaments) and claiming to once and all that he had planned to happen.

Since that March 1 game was not counted, Pakistan was reprieved. But then one has to give credit to a team, so badly down in the dumps, to

The Groups

Group A

India
Australia
West Indies
Sri Lanka
Zimbabwe
Kenya

Group B

Pakistan
England
South Africa
New Zealand
United Arab Emirates
Holland

come back strongly. Once the comeback began there was no stopping Pakistan. It was fitting that in the final Imran and Javed Miandad shared the crucial partnership which ensured that England had to get just over five an over. Finally Wasim Akram with his left arm wares came back to destroy the England batting.

The sixth (1996) Would it at last be England's turn to win the cup. A country which has figured in three of five finals does deserve the break. On the other two occasions England lost in the semifinals, the first time to Australia and on the second occasion to India. The current England outfit under the captaincy of Mike Atherton is riding a crest after winning the one-day rubber and squaring the Test series against the West Indies. But then the West Indies team is itself going through a period of rebuilding. Even then it is a good England side, strong on all rounders, and it could well be Atherton's luck to achieve what his predecessors failed to.

Naturally India and Pakistan, playing most of their matches at home, would be at an advantage. But there are also different types of pressures doing so which the cricketers of the two countries well know.

The dark horse seems to be South Africa, so unfortunate not to have made it to the final the last time in what was the team's first appearance in the World Cup.

The indications are that the sixth edition of the World Cup would be the most competitive. England, Australia, South Africa, India and Pakistan have all backers. And if one takes into account that the West Indies, once undisputed champions, are always dangerous on a day as also is Sri Lanka, a cracking good tourney is in store.

Finally if Javed Miandad makes it into the Pakistan team he would become the only player to have figured in all six World Cups. It would be a remarkable achievement for this means he has been around for 21 years. And that is a very long time in international sport at the highest level.

■ **Rajan Bala**
Sports Commentator



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Larwood: The body crosses the 'Line', R.I.P

Harold Larwood, England's hero and Australia's villain in the historical 'body line' cricket series of 1932-33, breathed his last, in Sydney. He was 90.

Larwood was the spearhead of captain Douglas Jardine's controversial leg-theory, a tactic of bowling short-pitched balls in a bid to blunt the renowned batting skill of Australia's champion batsman of that era, Sir Donald Bradman.

The stout-hearted one-time coalminer, later professional cricketer from Nottingham, captured 33 wickets in the Bodyline Series at an average of 19.51 -- Bradman was contained to a batting average of 56.57 in that series.

Bradman said Larwood should be remembered as one of the Titans of cricket.

"Although we were arch enemies on the field, this was because of Jardine's tactics," he said. "there was no personal animosity between Larwood and me and we always remained good friends".

Larwood played 21 Tests for England between 1926 and 1933, taking 78 wickets at 35.35 with his career best coming in the Bodyline Series.

Even though Larwood was the dominant bowler of the series, he never played again for England and emigrated to Sydney in 1950.

He lived anonymously in a modest bungalow with his wife of 67 years, Larwood refused to talk about the Bodyline series and his part in it.

But in an interview a few years ago, he was quoted as saying: "To tell the truth, from the moment we got home from that tour I've been fed up to the back teeth with the word 'Bodyline'. Still I am all these years later.

Douglas Jardine

Vow to never talk about it."

Bradman had dominated Australia's 1930 tour of England scoring 974 runs in five Tests at an average of 139.14 - in that same series Larwood took just four wickets in three Tests at 73 runs apiece.

The seeds of the Bodyline Series two years later were sown on that 1930 tour when a fierce spell of bowling from Larwood convinced Jardine, a member of the establishment, that short-pitched deliveries might unsettle the Australian icon.

Jardine gathered his country's best fast bowlers and supported them with a controversial umbrella field between leg slip and leg gully designed to snare any catch as the batsman attempted to avoid the rearing short ball smashing into his chest or face.

Larwood was the focal point of Jardine's reviled tactics and was the bowler when

Australian batsmen, Bill Woodfull and Bert Oldfield, were struck sickening blows during the fourth Test in Adelaide.

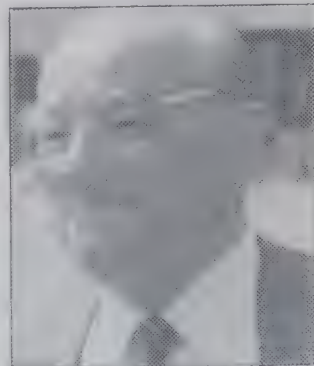
According to reports of the day, the capacity Australian crowd was close to storming the ground when Oldfield was led groggily from the field with a fractured skull.

At the end of the series, there ensued a flurry of strident cables between Australia and England, ultimately resolving to ban the bodyline style of bowling.

Jardine was absolved of blame whereas Larwood was asked to apologise for following his skipper's orders -- a command he refused



Harold Larwood



Donald Bradman

Walking Billboards

In these days of 'you-pay-I-sell' there is no limit to what one can do with talent. Be it commercialisation or liberalisation or whatever, it's celebration time for sport's glamour boys. Walking like billboards is only an occupational hazard, they laugh all the way to the bank.

Yes. These are the sunshine days of endorsements. The world of sports is up for sale. The talk is of visibility, viewership, popularity rating, and all these are thanks to the 'Idiot box', the T.V. If what you are doing is worth watching on TV, you are in for millions. Ask Sachin Tendulkar, Michael Jordan or Andre Agassi.

Ever since television channels began to spend exclusive time for sports, sports became a commodity. And, sports persons, billboards. Till recently, only tennis, golf and motor sports used to attract the world of industry to boost their marketing. It was Kerry Packer, the Australian tycoon - who first marketed cricket in a big way, through his night cricket. That was only the beginning. Times have changed. Now, cricket stars are perhaps more in demand than all the others put together, at least in cricket playing countries.

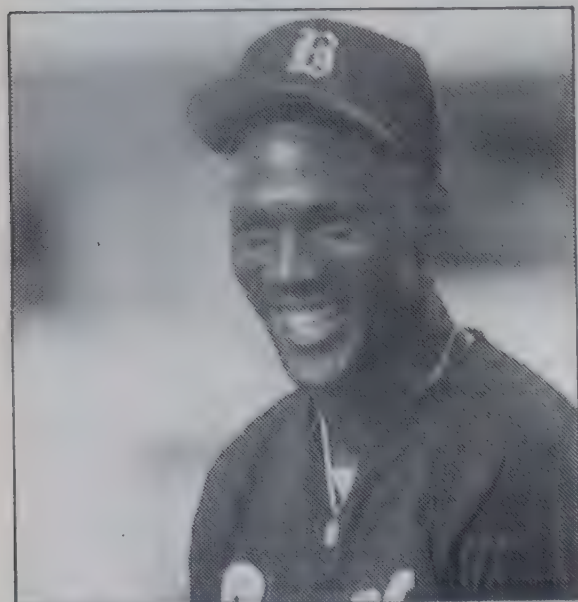
India entered the scene only recently. Cricket was naturally the first choice for companies because of its very high visibility on the TV screen. Cricket stars became super stars, blanking out even the movie stars. Sunil Gavaskar



Sachin Tendulkar

started the ball rolling. His acute business sense worked out a profitable plan to market his talent in particular and cricketers, in general. Gavaskar taught the cricketers to bargain for a better price and act professionally. He started endorsing products and events. Before him, there was Ferozk Engineer the dashing wicket keeper who was a regular in advertisements. Later Kapil Dev followed Gavaskar's foot steps in a much bigger way. By then, cricket became the prime sport event and the pet for advertisers and television networks. Cricketers became cult figures.

And then came Sachin Tendulkar. Talent and charisma belying his young age. The wonder of 1995 saw Sachin Tendulkar joining the league in the field of endorsements. The deal struck with World Tel is so huge and unheard of at least in Indian sports that Sachin would be earning thrice as much money as all the cricketers combined in the history of Indian cricket. He is expected to earn about US \$7.5 million (Rs. 50 crore) from World Tel, the television network owned by an NRI, spread over five years. Compared to Sachin, the other two big time cricketers, Brian Lara of West Indies and Steve Warne of Australia, are pale. Mind you, Sachin is already endorsing a series of products, earning around Rs. 5 crore per year. If World Tel works out it's magic in the coming years, Sachin is billed to earn another US \$ 2.5 million (Rs. 20 crore) over the next five years.



Michael Jordan

In India, Sachin Tendulkar has no rivals in the field of endorsements. Mohammed Azaruddin, captain and Vinod Kambli are two other favourites for the multinational companies. It doesn't mean that other cricketers are not making money. Players like Anil Kumble, Jagwal, Ananth, Manoj Prabhakar, Nayan Mongia, and Kapil Prasad are all there. But they belong to another league. If India wins the world cup in 1996, one can imagine the kind of superstar status Sachin, Azar and others are going to have! Sachin is already endorsing Action shoes, Pepsi, Visa, Gillette, Bajaj Sunny, Band etc. His 5.4 crore rupees a year is far ahead of Brian Lara's deal with Joe Bloggs Jeans, Wisden Cricketer's Almanac, King Fisher etc. which earn Rs. 2.16 crore an year. The next two in the league are Shane Warne (Nike International - Rs. 60 lakh) Azaruddin's deal with book shoes is real hot and it has raised enough controversy already.

The other Indian sports events are not very successful in this kind of marketing. The main reason being their under exposure on TV. The Cricket Board has had a head start over all others. But, their days are not far behind. Leander Paese, the tennis star, is having a rollicking time with money. He is the only Indian tennis player to have a racket - (Prince) and apparel contract. His deal with Lotto shoes is expired and is having negotiations with Reebok. The Davis Cup team sponsored by Steel Authority of India. The top football sensation, Bhaichung Bhutia, has run his career in style. He has a good deal with Reebok.

Apart from Leander, the only other sportsman who has an international billing is



Mike Tyson

Viswanathan Anand. Finishing as runner up to Garry Kasparov in the World Championship final fetched him Rs. 1.8 crore, the biggest single individual pay-off for an Indian sportsman.

Thus the Indian scene is changing fast. But, it pales miserably when compared to what the western sports persons are earning. There, professional sports marketing has matured into a well established industry. Take Michael Jordan, for example. This higher paid basket ball superstar had a break from the game for a few months in 1994. But he returned and ended up as the top most earner in 1994. His earnings in 1994 reads a mammoth 108.36 crore rupees. Mike Tyson, the former world heavy weight champion had all kinds of trouble with the law. He was in prison for quite a while. He became free in 1995. Tyson had only one fight in 95, and bagged a cool 90 crore rupees - second in the earning list. Contrary to popular perception, Andre Agassi comes only tenth in the list. But the amount is Rs. 41.04 crore (1994).

Times are good, the cash box is brimming. However, there is widespread criticism against sports going over commercialised. The argument is that players tend to succumb to the pressure exerted by their business deals. Their sporting talent takes the beating, they tend to be over exposed, and their egos overboosted. But the players have their defence. They argue that these deals would only make their life easy. When there is someone to take care of their earnings, they can totally devote their time to the game. Also, money is a great motivating factor, too. When only the best gets the best, the player strives to be the best.

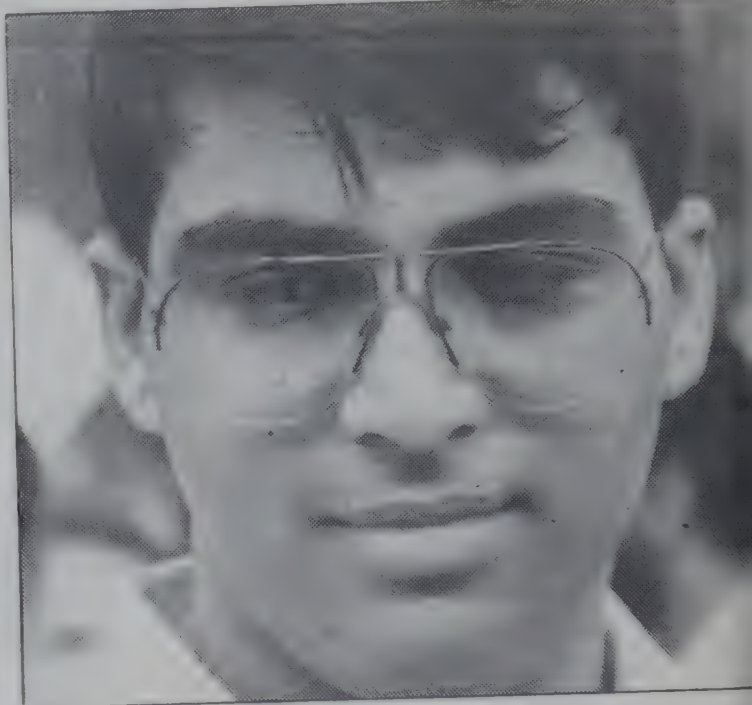
Malhotra Tops

Bengal skipper Ashish Malhotra earned the distinction of becoming the highest run scorer in Ranji Trophy championship when he reached 7149 during his 44-run out against Assam. It was the 151st innings of his 108th match in the championship. Malhotra crossed the previous record of Prashant Patel's 7126 and reached 7149 at the 151st match. He has an average of 55.85. His not-outs and highest score of 258 not out against Hyderabad in 1989-90.



Anand: One Step Away

It was just one step away from the ultimate glory. Viswanathan Anand, arguably India's greatest ever sportsman, rode the lightnings on the 64 square war land and reached right on top, almost. That he lost to the unstoppable Russian Garry Kasparov, doesn't devalue the brilliance a bit. The P.C.A World Championship held at the World Trade Center in New York in September 1995 was Anand's ultimate challenge to the world crown. It was touch and go. He lost. But chances are that in 1998 he will most probably be once again there to challenge Garry Kasparov. Anand has proved that in technical skill and steely will, he is the only challenger to the crown.



Irrespective of the result of the World Championship final, Anand gave India some of the finest moments of suspense and pleasant surprises. Millions of Indians sat glued to their television sets, watching Anand's every move and waiting for the moment of glory.

Garry Kasparov is to chess what Mohammed Ali was to boxing; and the whole world waited for Viswanathan Anand to do a Leon Spinks. However, Kasparov's enormous wealth of experience and killer instincts won the day. Both Anand and Kasparov have similar style. But, at the end of the day, only one can be the winner. Anand left New York as the 'almost world champion' and with half the amount of the prize money - Rs. 1.6 crore, the biggest prize money for an Indian sports man in one event.

Anand, the prodigy from Tamil Nadu has been conquering the big guns in the battle field of 'cerebral warfare' for over a decade. Behind him are the Gata Kamskys and Nigel shorts. The only shadow between him and the crown is that of the champion: Garry Kasparov.

Anand's story of success is like his game: so uninterrupted like the smooth flow of a river. He learned the basics from his mother Sushila, when he was six. Anand started play-

ing tournaments when he was eight. His turning point was when his father, Viswanathan who was with the South Indian ways, got a deputation to Philippines and Anand revelled in the exciting chess atmosphere in Manila. It was there that he got his obsession for speed. His moves were like lightning bolts, winning. In those days, Anand could finish a dozen games in one hour!

Anand returned to India in 1980. His chess quest began in 1983. Anand won the world title that year. He never looked back. He was the world's youngest International Master and won the Asian Junior title. By 1987 Anand was a Grand Master. He won the world junior title the same year. In 1990, he outclassed Karpov, Garry Kasparov and the rest to become number one in Reggio Emilia tournament. Anand qualified for the candidates contest but lost to Karpov in 91.

When the chess world split into two camps, FIDE and PCA, Anand took part in both tournaments. He lost the FIDE quarter final to Kamsky at Sanghi Nagar, near Hyderabad. In PCA semi final at Las Palmas, Spain, he avenged the defeat. He became the first Indian to reach the final of the world championship.

Kasparov Reigns Again

Garry Kasparov proved his unassailability again. The chess world crown has been his since 1985, when he beat Anatoly Karpov. At New York, he ensured that he would have the longest uninterrupted reign since Emmanuel Lasker between 1895-1921. The 1995 title was his 10th. He found Anand a much tougher opponent than Kamsky or Short. Also, this was the first time that Kasparov had to come back behind.

Kasparov proved his touch of success on the business front too: the success of PCA, Professional Chess Association. The association is a break away group formed by Kasparov, who was unhappy with FIDE. He started the professional circuit in chess similar to those in tennis and golf.

Kasparov turned the championship into a commercial enterprise. He sold advertising and TV rights. There were sponsors. The championship was sponsored by INTEL. It was a huge success. Millions watched it on TV; the match was shown live. The Anand-Kasparov match was the most talked about one since the Fischer-Boris Spasky final in 1975.

Kasparov also made improvisations in the format of the match. The series consisted of 20 games instead of the usual 24. First player to reach 10 points wins the championship. No adjournments. A victory means one point; a draw, half point. In case of a tie, the champion would retain the title.



The Kings

Max Steinitz	Austria	1886-1894
Emmanuel Lasker	Germany	1894-1921
Raoul Capablanca	Cuba	1921-1927
Alexander Alekhine	Russia	1927-35, 37-46
Max Euwe	Holland	1935-37
Mikhail Botvinnik	S.U.S.S.R.	1948-57, 58-60, 61-63
Boris Spassky	S.U.S.S.R.	1957-58
Bobby Fischer	S.U.S.S.R.	1960-61
Tigran Petrosian	S.U.S.S.R.	1963-69
Ulf Andersson	S.U.S.S.R.	1969-72
Robert Fischer	USA	1972-75
Anatoly Karpov	S.U.S.S.R.	1975-85, 1993
Garry Kasparov	Russia	1985-1995

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Sports Panorama

World Athletic Championship 1995

Gothenberg:

Men

100 metres: 1. Donovan Bailey, Canada, 9.57 seconds; 2. Bruny Surin, Canada, 10.03; 3. Maurice Beldon, Trinidad and Tobago, 10.03.

200 metres: 1. Michael Johnson, U.S., 19.79 seconds (Championship Record); 2. Frank Fredericks, Namibia, 20.12; 3. Jeff Williams, S., 20.18.

400 metres: 1. Michael Johnson, U.S., 43.39 seconds; 2. Butch Reynolds, U.S., 44.22; 3. Greg Rutherford, Jamaica, 44.56.

800 metres: 1. Willson Kipketer, Denmark, 1:45.08 seconds; 2. Arthemone Mujumana, Burundi, 1:45.64; 3. Vebjorn dal, Norway, 1:45.68.

1,500 metres: 1. Noureddine Morceli, Algeria, 3 minutes 33.73 seconds.

5,000 metres: 1. Ismael Kirui, Kenya, 13 minutes 16.77 seconds.

10,000 metres: 1. Haile Gebrselassie, Ethiopia, 27 minutes, 12.95 seconds.

3,000 metres steeplechase: 1. Moses Tanui, Kenya, 8 min. 4.16 sec.

110-metre hurdles: 1. Allen Johnson, U.S., 1:30.00 seconds; 2. Tony Jarrett Britain, 1:30.04; 3. Roger Kingdom, U.S. 1:31.19.

400-metre hurdles: 1. Derrick Adkins, U.S., 1:00.98 seconds.

4 x 100 metres relay: 1. Canada (Robert Moncrieff, Glenroy Gilbert, Bruny Surin and Donovan Bailey) 38.31 seconds; 2. Australia (Henderson, McKinnon, Brimacombe and Marsh) 38.50; Italy (Gianfranco Puggioni, Madonia, Cipolloni and Floris) 39.07.

4 x 400 metres relay: 1. United States (Dwight Clayton Ramsey, Derek Mills, Butch Reynolds and Michael Johnson) 2 minutes 57.32 seconds; 2. Jamaica (McDonald, Clarke, McFarlane and Rutherford) 2:59.88; 3. Nigeria (Ekpeyong, Ojuyigbe, Monye and Bada) 3:03.18.

Marathon: 1. Martin Fiz, Spain, 2 hours 11 minutes 41 seconds; 2. Dionisio Ceron, Mexico, 2:13; 3. Luiz Dos Santos, Brazil.

Decathlon: 1. Dan O'Brien, U.S., 8,695 points.

20-kilometre walk: 1. Michele Didoni, Italy, 1:19.19, 19 minutes, 59 seconds.

50-kilometre walk: 1. Valentin Kononen, Finland, 3 hours, 43 minutes 42 seconds.

Shot put: 1. John Godina, U.S., 21.47 metres; 2. Jari Hietanen, Finland, 20.93; 3. Randy Barnes, U.S., 20.4.

Discus: 1. Lars Riedel, Germany, 68.76 metres; 2. Vladimir Dubrovshchik, Belarus,

65.98; 3. Vasily Kaptukh, Belarus, 65.88.

High jump: 1. Troy Kemp, Bahamas, 2.37 metres; 2. Javier Sotomayor, Cuba, 2.37; 3. Artur Partyka, Poland, 2.35.

Long jump: 1. Ivan Pedroso, Cuba, 8.70 metres; 2. James Beckford, Jamaica 8.30; 3. Mike Powell, U.S., 8.29.

Pole vault: 1. Sergei Bubka, Ukraine, 5.92 metres.

Javelin: 1. Jan Zelezny, Czech Republic, 89.58 metres.

Triple jump: 1. Jonathan Edwards Britain, 18.29 metres (world record).

Hammer throw: 1. Andrey Abduvaliyev, Tajikistan, 81.56 metres.

Women

100 metres: 1. Gwen Torrence, U.S., 10.85 seconds.

200 metres: 1. Merlene Ottey, Jamaica, 22.12 seconds.

400 metres: 1. Marie-Jose Pécé, France, 49.28 seconds.

800 metres: 1. Ana Fidelia Quirot, Cuba, 1 minute 56.11 seconds.

1,500 metres: 1. Hassiba Boulmerka, Algeria, 4 minutes, 2.42 seconds.

5,000 metres: 1. Sonia O'Sullivan, Ireland, 14 minutes 46.47 seconds.

10,000 metres: 1. Fernanda Ribeiro, Portugal, 31 minutes, 4.99 seconds.

100-metre hurdles: 1. Gail Devers, U.S., 12.68 seconds.

400-metre hurdles: 1. Kim Batten U.S., 52.61 sec. (world record).



Michael Johnson

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4 x 100 metres relay: 1. United States (Felena Monde-Milner, Carlette Guidry, Chryste Gaines and Gwen Torrence) 42.12 seconds.

4 x 400 metres relay: 1. United States (Kim Graham, Rochelle Stevens, Camara Jones and Earl Miles) 3 minutes, 22.39 seconds.

Marathon: (Competitors ran 400 metres shorter than regulation distance): 1. Manuela Machado, Portugal, 2 hours, 25 minutes, 39 seconds.

Heptathlon: 1. Ghada Shouaa, Syria, 6,651 points.

10-kilometre walk: 1. Irina Stankina, Russia, 42 minutes 13 seconds.

Shot put: 1. Astrid Kumbernuss, Germany, 12.22.

Discus: 1. Ellina Zvereva, Belarus, 68.64 metres.

Javelin: 1. Natalya Shikolenko, Belarus, 57.56 metres.

High jump: 1. Stefka Kostadinova, Bulgaria, 2.01 metres.

Long jump: 1. Fiona May, Italy, 6.98 metres.

Triple jump: 1. Inessa Kravets, Ukraine, 15.50 metres.

World meet medals tally

Nation	G	S	B
United States	10	2	5
Belarus	2	3	2
Italy	2	2	2
Germany	2	2	2
Cuba	2	2	0
Kenya	2	1	3
Canada	2	1	1
Portugal	2	1	1
Ukraine	2	0	1
Algeria	2	0	0
Russia	1	3	7
Jamaica	1	3	2
Britain	1	3	1
Bulgaria	1	2	1
Finland	1	1	1
Bahamas	1	1	0
Ethiopia	1	1	0
Spain	1	1	0
France	1	0	2

Other golds: Czech Republic, Denmark, Ireland, Syria, Tajikistan.

World Athletics records

(as in August 1995)

100 m	9.85	Leroy Burrell	USA	Lausanne	6-7-94
200 m	19.72	Pietro Mennea	ITA	Mexico City	12-9-79
400 m	43.29	Butch Reynolds	USA	Zurich	17-8-88
800 m	1:41.73	Sebastian Coe	GBR	Florence	10-6-81
1000 m	3:27.37*	Nouredine Morceli	ALG	Nice	12-7-95
1500 m	12:55.30*	Moses Kiptanui	KEN	Rome	8-6-95
2000 m	26:43.53*	H. Gebreselassie	ETH	Hengelo	5-6-95
3000 m	8:02.08	Moses Kiptanui	KEN	Zurich	19-8-92
400 m steeplechase	12.91	Colin Jackson	GBR	Stuttgart	20-8-93
500 m hurdles	46.78	Kevin Young	USA	Barcelona	6-8-92
600 m hurdles	2.45	Javier Sotomayor	CUB	Salamanca	27-7-93
700 m hurdles	6.14	Sergey Bubka	UKR	Sestriere	31-7-94
800 m hurdles	8.95	Mike Powell	USA	Tokyo	30-8-91
900 m hurdles	18.29 m	Jonathan Edwards	GBR	Gothensberg	18-8-95
1000 m hurdles	23.12	Randy Barnes	USA	Los Angeles	20-5-90
1100 m hurdles	74.08	Jurgen Schult	GDR	N'brandenburg	6-6-86
1200 m hurdles	86.74	Yuriy Sedykh	URS	Stuttgart	30-8-86
1300 m hurdles	95.66	Jan Zelezny	CZE	Sheffield	29-8-93
1400 m hurdles	88.91	Dan O'Brien	USA	Talence	5-9-92
1500 m hurdles	1:17:25.6	Bernardo Segura	MEX	Bergen	7-5-94
1600 m hurdles	3:41:28.2	Rene Piller	FRA	Bergen	7-5-94
1700 m hurdles	37.40	USA		Barcelona	8-8-92
1800 m hurdles		(Mike Marsh,			
1900 m hurdles		Leroy Burrell,			
2000 m hurdles		Dennis Mitchell			
2100 m hurdles		Carl Lewis)			
2200 m hurdles	37.40	USA		Stuttgart	21-8-93
2300 m hurdles		(John Drummond,			
2400 m hurdles		Andre Cason,			

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Chairman
Ph : 334011

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Managing Director
Ph : 334011

400 m	2:54.29	Dennis Mitchell, Leroy Burrell) US (Andrew Valmon, Quincy Watts, Butch Reynolds, Michael Johnson)		Stuttgart	22-8-93
t performance					
athon	2:06:50	Belayneh Dinsamo	ETH	Rotterdam	17-4-88
men					
m	10.49	Florence G. Joyner	USA	Indianapolis	16-7-88
m	21.34	Florence G. Joyner	USA	Seoul	29-9-88
m	47.60	Marita Koch	GDR	Canberra	6-10-85
m	1:53.28	J. Kratochvilova	CZE	Munich	26-7-83
0 m	3:50.46	Qu Yunxia	CHN	Beijing	11-9-93
0 m	14:36.45*	Fernanda Ribeiro	POR	Hechtel	22-7-95
00 m	29:31.78	Wang Junxia	CHN	Beijing	8-9-93
m hurdles	12.21	Yordanka Donkova	BUL	Stara Zagora	20-8-88
m hurdles	52.61	Kim Batten	USA	Gothenberg	17-8-95
n jump	2.09	Steika Kostadinova	BUL	Rome	30-8-87
g Jump	7.52	Galina Chistyakova	URS	Leningrad	11-6-88
le jump	15.09	Ana Biryukova	RUS	Stuttgart	21-8-93
t put	22.63	Natalya Lisovskaya	URS	Moscow	7-6-87
us	76.80	Gabriele Reinsch	GDR	N'brandenburg	9-7-88
lin	80.00	Petra Felke	GDR	Potsdam	9-9-88
tathlon	7291	Jackie J. Kersee	USA	Seoul	24-9-88
0 m walk	20:17.19	Kerry Saxby	AUS	Sydney	14-1-90
0 m walk	41:56.23	Nadezhda Ryashkina	URS	Seattle	24-7-90
00 m	41.37	GDR (Silke Gladisch, Sabine Rieger, Ingrid Auerswald, Marlies Gohr)		Canberra	6-10-85
00 m	3:15.17	URS (Tatyana Ledovskaya, Irina Nazarova, Maria Pinigina, Olga Bryzgina)		Seoul	1-10-88
performance					
thon	2:21.06	Ingrid Kristiansen	NOR	London	21-4-85

aiting ratification.

in Track and Field Meet: 1995

			400 m		
			Ibrahim Ismail	Qatar	44.96
			CR		
m			Son-Ju-II	Korea	46.03
Ve	China	10.34	Sugath Tilakaratne	Sri Lanka	46.21
r Kouchmuradov	Uzbekistan	10.43	Kenji Tabata	Japan	46.73
itaka Ito	Japan	10.45	Si Yandong	China	46.81
Ibrahim	Malaysia	10.46	Mohammad Al-Beshi	Saudi	
haka De Soysa	Sri Lanka	10.46	Arabia		47.01
g Hsin-Ping	Chinese				
	Taipei	10.54	800 m		
m			Kim Yong-Hwan	Korea	1:49.94
ia Mattar	Bahrain	20.76	Mohamed Suleiman	Qatar	1:50.05
g Danwei	China	20.79	Song Mingyou	China	1:50.30
Osakada	Japan	21.20	Abdurahman Hassan	Qatar	1:50.42
hai Seehawong	Thailand	21.30	Mahmoud Ki'Arat	Syria	1:50.99
miro Hirakawa	Japan	21.35	Kim Soon-Hyung	Korea	1:52.38
med Al-Hooti	Oman	21.40	1500 m		
			Mohamed Suleiman	Qatar	3:41.33

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SPACE AD

g Mingyou	China	3:42.79
Soon-Hyung	Korea	3:45.08
norio Uchitomi	Japan	3:45.63
rn Srichudanu	Thailand	3:46.16
us Lewol	Indonesia	3:46.21

10 m		
d S. Al-Asmari	Saudi	

	Arabia	14:01.43
ly Sopyev	Turkme-	14:02.97
	nistan	

Fengyuan	China	14:07.99
al Hassan	Qatar	14:11.07
g Guocai	China	14:12.66
adur Prasad	India	14:12.93

1000 m		
ly Sopyev	Turkme-	30:04.87
	nistan	

Fengyuan	China	30:05.02
ed Ibrahim	Qatar	30:06.68
g Guocai	China	30:17.70
an Al-Qahatani	Saudi	30:26.60
	Arabia	30:26.60
d Srais	Jordan	30:30.20

10 m steeplechase		
d S. Al-Asmari	Saudi	
	Arabia	8:24.00CR
al Hassan	Qatar	8:41.99
id Sadjadi	Iran	8:42.80
norio Uchitomi	Japan	8:43.72
gio Machido	Japan	8:44.82
him Ali Yahya	Saudi	9:03.92
	Arabia	

100 m hurdles		
a Yanho	China	13.65
hiro Matsuhisa	Japan	13.92
Herman Majid	Malaysia	13.99
esh Perera	Sri Lanka	14.06
ung-Ho	Korea	14.28
az Ismail	Bahrain	14.38

100 m hurdles		
arak Al-Nubi	Qatar	50.17
aki Kawamura	Japan	50.45
il Ali Doka	Qatar	50.73
ond Kenchan	Thailand	51.09
uechun	China	51.38
ammad Amin	Pakistan	51.54

100 m Jump		
in-Taek	Korea	2.32
ang	China	2.26
Kum Zee	Malaysia	2.19
iya Onoue	Japan	2.19
Yew Wong	Singapore	2.15
hiro Kimino	Japan	2.15

100 m vault		
uki Takei	Japan	5.30
Chul-Kyun	Korea	5.30
aki Kobayashi	Japan	5.10
ad Abdul Karim	Qatar	4.70
son Obiena	Philippines	4.50

Asiad: Back to South Korea

Asian Games returns to South Korea. The 2002 Asiad will be held in Pusan, South Korea's Port city. South Korean capital Seoul hosted the 1986 Asiad and the '88 Olympics.

Pusan won the right over Taiwan's Kaoshiung, in a vote by the O.C.A. China's objection to Taiwan appeared to have influenced the outcome of the vote. China threatened to stay away, if the Taiwanese port city was selected.

As incentives, Pusan offered to contribute \$35 m. as development fund money for O.C.A while Kaoshiung offered \$10 m.

The next Asiad, in 1998, is to be held in Bangkok.

Chao Kuo-Chih	Chinese	
	Taipei	7.99w
Abdul Rahim Al-Nubi	Qatar	7.87
Aguz Reza Irawan	Indonesia	7.85
Sung Hee-Joon	Korea	7.77
Nai Hui-Fang	Chinese	
	Taipei	7.77w

Triple jump		
Zeng Lizhi	China	16.78
Aleksey Fatianov	Azerbaijan	16.68
Vasif Asadov	Azerbaijan	16.53
Oleg Sakirkin	Kazakhstan	16.40
Salem Al-Ahmady	Saudi	
	Arabia	16.32
Takashi Komatsu	Japan	16.32

Shot put		
Saad Bilal Mubarak	Qatar	18.87
Sergey Roubatsov	Kazakhstan	18.66
Shakti Singh	India	18.07
Xie Shengying	China	17.94
Yuji Okano	Japan	17.34
Sergey Kot	Uzbekistan	17.17

Discus throw		
Ma Wei	China	58.44
Roman Poltoratski	Uzbekistan	57.36
Vadim Popov	Uzbekistan	56.30
Ajit Bhaduria	India	56.06
Shakti Singh	India	55.46
Dashdend Mahashiri	Mongolia	53.48

Hammer throw		
Bi Zhong	China	70.30
Koji Murofushi	Japan	69.24
Vitali Khozhatelev	Uzbekistan	68.48
Waleed Al-Bekheet	Kuwait	66.92
Nasser Abdullah	Kuwait	65.16
Wen Peiliang	China	62.16

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elin throw

ang Lianbiao	China	79.60
tor Zaitsev	Uzbekistan	75.68
gey Voinov	Uzbekistan	73.46
anem Zaid Johar	Kuwait	72.94
dericus Mahuse	Indonesia	70.88
n Ki-Hoon	Korea	70.36

athlon

toshi Maruono	Japan	7333
ashi Kiyokawa	Japan	6706
him Nassere	UAE	6186
an Abu Najem	Jordan	5708
man Sigar	Brunei	4591

000 m walk

lingcai	China	1:23:58.80CR
i Gordeev	Kaza-	1:32:30.90

khstan		
Malaysia	1:35:39.60	
Indonesia	1:40:21.80	
Philippines		

Indonesia	1:40:49.00	
-----------	------------	--

100 m relay

China	39.49
Thailand	39.85
Qatar	40.16
Japan	40.30
Malaysia	40.38
Saudi Arabia	41.56

Qatar	3:05.78
Japan	3:06.16
Sri Lanka	3:07.87
India	3:08.24
Malaysia	3:08.96

China	11.36
-------	-------

Sri Lanka	11.37
-----------	-------

Kazakhstan	11.49
China	11.57

Sri Lanka	11.62
Korea	11.73

Sri Lanka	23.00CR
-----------	---------

China	23.80
-------	-------

China	24.04
-------	-------

Kazakhstan	24.20
------------	-------

Kazakhstan	24.35
------------	-------

Hong Kong	24.56
-----------	-------

China	52.06
-------	-------

China	52.33
-------	-------

India	53.69
-------	-------

Thailand	54.51
----------	-------

Kazue Kakinuma	Japan	54.90
Srirat Chimrak	Thailand	55.18

800 m

Jyotirmoyee		
Sikdar	India	2:06.75
Kumiko Okamoto	Japan	2:07.28
Shiny Wilson	India	2:07.45
Zhang Jian	China	2:07.85

Jayamini		
Illeperuma	Sri Lanka	2:08.83
Ester Sumah	Indonesia	2:09.42

1,500 m

Kumiko Okamoto	Japan	4:18.69
Zhang Jian	China	4:19.87
Wang Qingfen	China	4:21.99
Oh Mi-Ja	Korea	4:24.85

Jyotirmoyee Sikdar	India	
Arunsuda Chinij	Thailand	4:41.87

5,000 m

Wang Junxia	China	15:25.65
Tri Asih Handayani	Indonesia	16:39.78
Maysa Matrood	Iraq	16:42.01
Ruwiyati	Indonesia	17:04.17
Chan Man Yee	Hong Kong	17:39.71
Kesh Maya Shreesh	Nepal	19:19.07

10,000 m

Wang Junxia	China	33:58.50
Tri Asih Handayani	Indonesia	35:45.07
Maysa Matrood	Iraq	35:51.76
Ruwiyati	Indonesia	36:00.23

100 m hurdles

Sriyani Kulawansa	Sri Lanka	13.29
Zhang Yu	China	13.44
Hsu Hsiu-Ying	Chinese	

Ayumi Sasaki	Taipei	13.58
Varunee Worsaksene	Japan	13.65
Chan Sau Ying	Thailand	13.86
Hsu Pei-Chin	Hong Kong	14.06

400 m hurdles

Hsu Pei-Chin	Chinese	
	Taipei	56.90
Rewadee Wattanasin	Thailand	57.98
Natalya Torshina	Kazakhstan	58.88
Mika Sasaki	Japan	59.77
Zhang Weimin	China	60.78
Anna Leah Hugo	Philippines	61.91

High jump

Svetlana Zalevskaya	Kazakhstan	1.89
Miki Imai	Japan	1.89
Jaruwa Jenjardkarn	Thailand	1.86
Rassamee Taemsri	Thailand	1.83
Svetlana Munkova	Uzbekistan	1.80
Kim Mi-Ok	Korea	1.80

Long jump

Elena Pershina	Kazakhstan	6.50w
Yao Weili	China	6.47
Ema Muros	Philippines	6.37
Feng Jie	China	6.31
Lekha Thomas	India	6.30
Ayumi Sasaki	Japan	6.23

Triple jump

Ren Ruping	China	13.99
Wu Lingmei	China	13.81
Elena Pershina	Kazakhstan	13.13
Oxana Zelinskaya	Kazakhstan	13.02
Wacharee Ritthiwat	Thailand	12.78
Lekha Thomas	India	12.71

Shot put

Sui Xinmei	China	18.87
Zhang Zhiying	China	17.58
Elena Baltabaeva	Kazakhstan	16.07
Lee Myong-Sun	Korea	15.50
Takako Ichikawa	Japan	14.58
Tsai Mei-Ling	Chinese Taipei	14.21

Discus throw

Li Qiumei	China	58.26
Park Kyung-Hee	Korea	48.04
Swaranjit Kaur	India	47.50
Yuko Koyama	Japan	46.68
Fang An-Hua	Chinese Taipei	42.14

Tea Seng Ai

Javelin throw

Li Lei	China	60.48
Lee Young-Sun	Korea	58.68
Ha Xiaoyan	China	55.80
Akiko Miyajima	Japan	53.58
Elena Burgiman	Uzbekistan	51.82
Fang An-Hua	Chinese Taipei	

Heptathlon

Svetlana Kazanina	Kazakhstan
Liu Bo	China
Rumiko Ubukata	Japan
Wang Xiuyan	China
Li Chao-Hsiu	Chinese Taipei

Kim Nan-Young

10,000 m walk

Feng Haixia	China	45:58
Wang Liping	China	46:10
Yuka Kamioka	Japan	46:30
Mailia Sozonova	Kazakhstan	46:40
Hasiati Lawole	Indonesia	54:10
Aida Isayeva	Azerbaijan	54:20

4 x 100 m relay

	China	
	Kazakhstan	
	Thailand	
	Sri Lanka	
	Japan	
	Indonesia	

4 x 400 m relay

	China	3:32
	India	3:30
	Thailand	3:30
	Japan	3:30
	Indonesia	3:30
	Malaysia	

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Asian Continental Records

(as in September 1995)

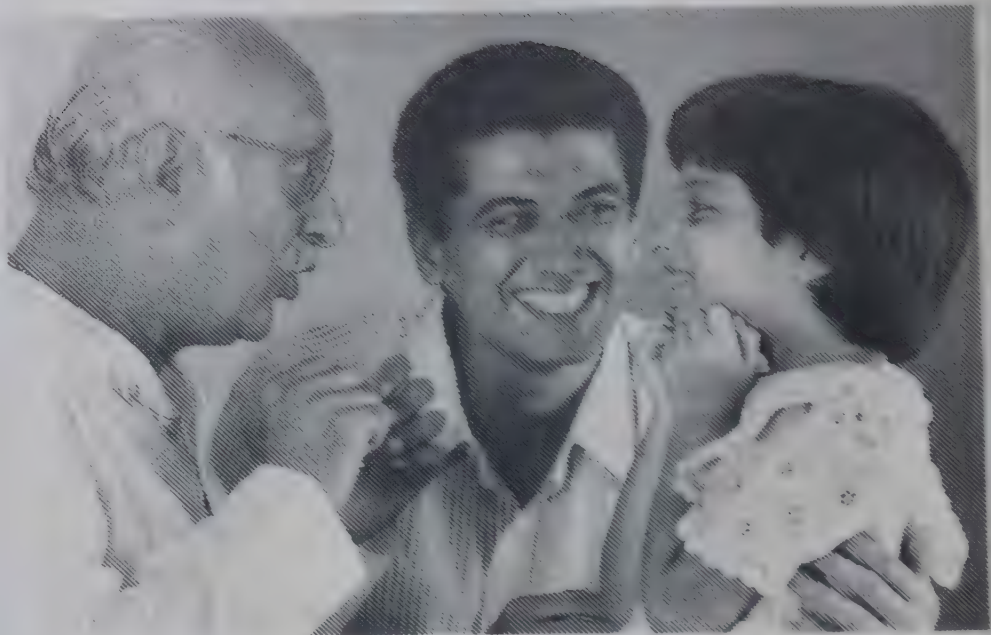
men

100 m	10.41	Talal Mansoor	QAT	Budapest	18.06.92
100 m	20.41	Chang Jae-Keun	KOR	Jakarta	27.09.85
		Talal Mansoor	QAT	Hiroshima	15.10.94
100 m	44.56	Mohammed Al-Malky	OMN	Budapest	10.08.88
100 m	1:44.14	Lee Jin-Il	KOR	Seoul	18.06.94
500 m	3:32.73	Mohamed Suleiman	QAT	Cologne	21.08.94
1000 m	13:20.33	Toshinari Takaoka	JPN	Stockholm	02.07.92
1000 m	27:35.33	Takeyuki Nakayama	JPN	Helsinki	02.07.87
Marathon	2:07.35	Taisuke Kodama	JPN	Beijing	19-10-86
10 m H	13.25	Li Tong	CHN	Linz	04.07.94
10 m H	48.64*	Kazuhiko Yamazaki	JPN	Gothenburg	08.08.95
10 m SC	8:09.67*	S.Shaddad Al-Asmari	SAU	Zurich	16.08.95
High Jump	2.39	Zhu Jianhua	CHN	Eberstadt	10.06.84
Pole Vault	5.90	Griogoriy Yegorov	KZK	Stuttgart	19.08.93
Long Jump	8.38*	Huang Geng	CHN	Taiyuan	18.05.95
Triple Jump	7.35*	Oleg Sakirkin	KZK	Moscow	05.06.94
Shotput	19.78	Ma Yongfeng	CHN	Beijing	09.06.90
Discus	65.02	Yu Wenge	CHN	Nanjing	20.05.92
Hammer	83.36	Andrey Abduvaliyev	TJK	Budapest	03.06.94
Relay	87.60	Kazuhiro Mizoguchi	JPN	San Jose	27.05.89
Shotathlon	81.06	Ramil Ganiyev	UZB	Wien	26.06.94
1000m W	1:20:24.4	Li Mingcai	CHN	Jinan	15.03.92
100m	38.77	Japan		Barcelona	08.08.92
100	3:01.26	Japan		Tokyo	31.08.91

women

100 m	11.02	Liu Xiaomei	CHN	Beijing	08.09.93
100 m	22.56	Wang Huèi-Chen	TPE	Yilan	30.10.92
		Chen Zhaojing	CHN	Beijing	13.10.93
100 m	49.81	Ma Yuqing	CHN	Beijing	11.10.93
100 m	1:55.54	Liu Dong	CHN	Beijing	09.10.93
100 m	3:50.46	Qu Yunxia	CHN	Beijing	11.10.93
100 m	15:05.69\$	Zhong Huandi	CHN	Beijing	08.10.93
1000 m	29:31.78	Wang Junxia	CHN	Beijing	08.10.93
Marathon	2:24.07	Wang Junxia	Chn	Tianjin	04.04.93
10 m H	12.44*	Olga Shishigina	KZK	Luzern	27.06.95
10 m H	53.96	Chen Juying	CHN	Beijing	09.10.93
High Jump	1.97	Jin Ling	CHN	Hamamatsu	07.05.89
Long Jump	7.01	Yao Weili	CHN	Jinan	06.06.93
Triple Jump	14.55	Li Huirong	CHN	Sapporo	19.07.92
Shotput	21.76	Li Meisu	CHN	Shijiazhuang	22.04.88
Discus	71.68	Xiao Yanling	CHN	Beijing	14.03.92
Relay	70.42	Zhang Li	CHN	Tianjin	06.08.90
Shotathlon	42.46.7	Cui Yingzi	CHN	Jinan	15.03.92
		Chen Yueling	CHN	Jinan	15.03.92
100m	43.16	Guanzi team, China		Beijing	11.10.93
100m	3.24.28	Hebei team, China		Beijing	11.10.93

*pending ratification not officially ratified



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Athletics

Gene International Marathon 1. Joshua Kipkemboi (Kenya) 2:24.35, 2. Peter De Voicht (Belgium) 2:24.38, 3. Girdharilal (India) 2:30.00

Women (Half Marathon): 1. Midde Hamrim (Sweden) 1:17.14; 2. Praskovia Gregoremko (Kazakhstan) 1:20.58; 3. Rizgen Angmo (India) 2:30.33

Boston Marathon 1995

Men: 1. Uta Pippig (Germany) 2:25.11, 2. Jana Meyer 2:26.51

Women: 1. Cosmas Ndeti (Kenya) 2:09.22; 2. Moses Anu (Kenya) 2:10.22; 3. Luis Dos Santos (Brazil) 2:11.02

New York Marathon, 1995

Men: German Silva (Mexico) 2:11.0

Women: Tegla Loroupe (Kenya) 2:28.06

I.A.A.F Meet

100m: 1. Paramjit Singh (Police) 47.14, 2. Star Singh (Bengal) 47.56, 3. Rajeev Balakrishnan (Maharashtra) 47.97.

400m: 1. Satish Kumar (Services) 3:51.0, 2. Sandeep Singh (Manipur) 3:51.8, 3. Karan Singh (Rajasthan) 3:59.7.

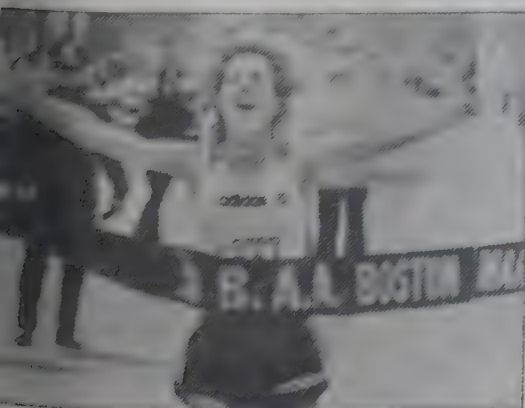
1000m: 1. Bahadur Prasad (Railways) 14:11.34, 2. Gulab Chand (Railways) 14:24.16, 3. Kapinder Tyagi (Railways) 14:24.21.

5000m: 1. Dinesh Kumar (Railways) 31:43.0
10000m: 1. Shakti Singh (Haryana) 19:08
National record: Old: 18.78m, 2. Manjit Singh (Police) 18.01m, 3. Bahadur Singh (Police) 18.04 m

15000m: 1. Shakti Singh (Haryana) 55:96m, 2. Bhaduria (TISCO) 55.14 m, 3. Anil Kumar (Railways) 50.58m.

Shot put: 1. Rajesh Bhardwaj (TISCO) 12.28 m, 2. Shubdeep Singh (Punjab) 62.54m, 3. Singh Punia (Rajasthan) 59.08 m.

Weight: 1. Satvir Singh (Police) 70.92 m, 2.



Pippig

Arjuna for Handicapped

The scope of Arjuna Awards has been expanded to include outstanding sportspersons in indigenous games and in the category of the physically handicapped.

Following the amendment in the rules, there will now be three categories of Arjuna Awards: for Olympic, Asian and Commonwealth Games and cricket, for indigenous games, and for physically handicapped sports, according to an official release.

The Arjuna Awards were initiated in 1961 to honour outstanding sportspersons for consistent performance in three previous years at the national or international level with excellence for the year for which the award was given.

The rules were amended in 1994 bringing into the scope of the awards sportspersons for their life time contribution to sports and sports promotion.

Vinod Kumar (Steel Plants) 68.50 m, 3. Jagdish Raj (Police) 68.46 m.

Women

400m: 1. Shiny Wilson (FCI) 53.53s, 2. K. Solaimathi (T.N.) 53.80s, 3. K. Rosa Kutty (Railways) 54.85s;

1500m: 1. Madhuri Saxena (U.P.) 4:28.7, 2. Minimol Philips (Gujarat) 4:29.9, 3. Rinku Atta (FCI) 4:34.6;

5000m: 1. L. Leelamma (Railways) 17:03.35, 2. Reena Das (Bengal) 18:54.27, 3. Kamlesh Thakur (Himachal) 20:03.98;

Long Jump: 1. Lekha Thomas (Kerala) 6.03m, 2. Bobby Aloysius (Kerala) 5.99m, 3. Shyla Mathews (Gujarat) 5.63m;

Shotput: 1. Harpreet Kaur (Police) 14.30m, 3. Gurmeet Kaur (Delhi) 13.24m;

Discus: 1. Swarnjit Kaur (Police) 48.94m, 2. Neelam J. Singh (Railways) 47.78m, 3. Gurmeet Kaur (Delhi) 44.02m.

Special Olympics National Game for the Mentally Handicapped

Madras: 1. Tamil Nadu (491 points); 2. Kerala (346); 3. Maharashtra (319).

Archery

Commonwealth Archery Championship

Team Men: India beat Australia 235-224.

Third Place: Singapore beat Malaysia 211-199.

Team Women: Hong Kong beat India 202-201.

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OJ: The Hero as Villain

For ten minutes, America stood still. One hundred and fifty million people sat glued to their television sets. Phones went silent. After an year in the Los Angeles Court, the jury declared Orenthal James Simpson, popularly known as 'OJ', not guilty. And then America erupted.

Described as the trial of the century, watched by more than 200 million people on TV, the 'OJ case' was the most sensational event off the sporting arena in 1995. OJ Simpson, former American football player (the American version) and an occasional movie star was arrested under charges of murdering his former wife Nicole Brown and her boy friend Ronald Goldman on the night of June 12, 1994.

OJ was one of the most popular sporting figures in U.S.A.. The fact that he was a black and it was a black dominated jury which acquitted him, gave the whole thing another dimension. The most liberal, the most democratic and the most progressive country in the world practically split into black and white, once again. The black celebrated the victory and the white sulked and expressed their frustration.

OJ, the San Francisco sensation at the U.S. Cup, set a national rushing record and had won the Heishman trophy. He is the first NFL player to gain 2000 yards in a season. He had won 4 rushing titles, led the league in scoring and went into the Hall of Fame in 1985. He was a successful performer on the screen too. He had starred in 'The Towering Inferno' and 'Naked Guns'. OJ Simpson divorced his first wife Marguerite Whitley in 1979, the year in which his daughter Aaren drowned in a swimming accident. He met Nicole Brown in 1977; married her in 1985. They divorced in 1992.

It was an ironical twist of fate that OJ was arrested during the 1994 world cup football championship in U.S.A.. OJ tried to get away from the police in his Bronco car. The chase and the eventual capture was shown live by CNN. In fact the chase had a much larger viewership than the actual world cup match that day.

The primary investigations by the Los Angeles Department of Police revealed that the trail of bloody footprints and droplets led out of Nicole's back alley straight to OJ's car, and ultimately into the shower and sink of OJ's bathroom.

The case took a new turn when an anonymous call from the police to Leslie Abramson who covered the hearing for ABC alleged break in of investigative procedures laid out by Los



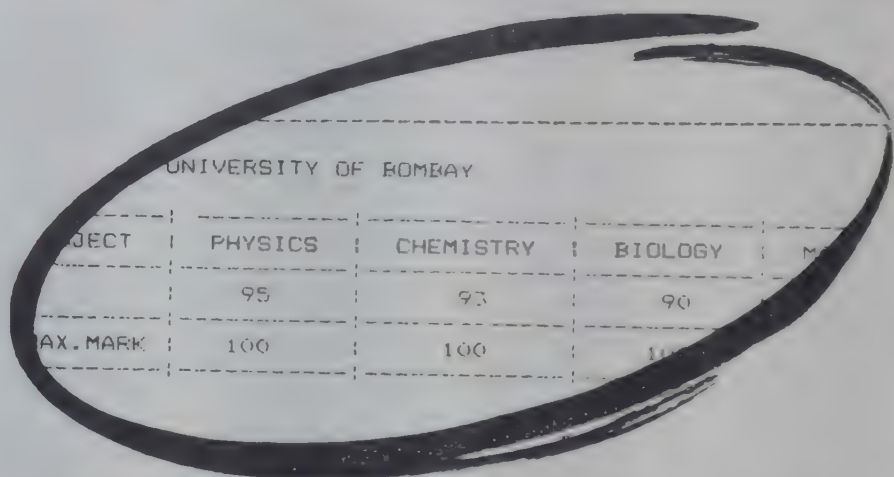
Angeles Police. A police officer going against his own department was strange.

The DNA finger printing reports of the blood samples gave further twist to the case. Experts in DNA evidence were flown in from New York. The defendant's lawyers clashed head on against Los Angeles Police's report on DNA tests. It was accused that the police reports were not reliable, a factor which might have influenced the final verdict by the jury.

Here comes the Indian connection. Dr. Ranajit Chakravarty, one of the leading DNA experts in the world and a senior professor of Genetics at the university of Texas was brought in. Dr. Chakravarty, a Professor for over 25 years and author of 400 research papers and co-author of 5 books, was asked to help to determine whether the labs had conducted the DNA tests properly.

Lacking any eyewitnesses on murder weapons, the prosecution had to build a circumstantial case. Thus the 'trial of blood' and the authenticity of the DNA test became crucial. Finally, the jury thought there were enough facts to doubt OJ's involvement in the act of murder.

The OJ Simpson trial had all the ingredients of a typical TV soap. The fact that hero/villain in the 'show' was a real life hero, added more spice to the whole thing. However, the two most important things that came out of the trial were the power and reach of the visual media to generate a such a massive audience reaction and the underlying feeling of racial difference, the heat of which was only dormant but, definitely, not dead.



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Third Place: Australia beat Singapore 192-163.
Federation Cup Archery:
 Team Men: Australia beat India 242-241.
 Team Women: Kazakhstan beat India 221-20.

Badminton

All England Badminton Championship, Birmingham.

Men's Singles: Paul Erik Hoyer Larsen (Denmark) beat Heryanto Arbi (Indonesia) 17-16, 5-6. **Women's Singles:** Lim Xiao Qing (Sweden) beat Carmila Martin (Denmark) 11-9, 10-2, 11-3. **Men's doubles:** R. Mainaky-R. Subagja (Indonesia) beat Antonius Karatone - J. Karatone (Indonesia) 15-12, 15-18, 15-8. **Women's doubles:** Young Ah - J. Hye Ock (Korea) beat Elisa - R. Zelin (Indonesia) 15-6, 15-3.

National Badminton, Patiala Men Singles: Dipankar Bhattacharjee (Asm) beat Rajeev Agga (Mah) 15-5, 17-14. **Women Singles:** V.V. Lakshmi (AP) beat Manjusha Pawangadkar (Mah) 11-9, 11-6. **Men's Doubles:** Hushan Akut-U. Vinod Kumar (BAI) beat Vijaydeep Singh-Jaseel P. Ismail (BAI) 15-9, 15-10. **Women's Doubles:** Nancy Keith-Sindhu Gulathi (Railway) beat Manjusha Pawangadkar Archana Deodhar (Mah.) 15-9, 15-1. **Team Men:** Maharashtra beat A.P 3-2. **Women:** Railways beat AP 2-1.

Basketball

National Basketball Championship, Udhiana

Men: Punjab beat Bihar 65-55. **Third Place:** Rajasthan

Women: Railways beat Punjab 61-47. **third placed:** Maharashtra.

re Asian Men's Basketball, Vijayawada

Final Standing: 1. Punjab. 2. Rest of India. 3.

Rajasthan. 4. Andhra Pradesh. 5. Tamil Nadu.

Federation Cup Basketball, Pondicherry

Punjab Police beat Indian Bank 59-54.

Billiards

World Professional Billiards, Bombay

Jeeth Sethi beat Devendra Joshi 1661-931

Boxing

World Heavyweight Boxing, Las Vegas

Didick Bowe knocked out Evander Holyfield

in the 8th round.

Chess

PCA World Chess 1995 Kasparov beat V. Anand.

National 'A' Chess Championship

Men Final standing: 1. P. Konguvel (12 points); 2. D.V. Prasad (11); 3. R.B. Ramesh (11).

Women Final standing: 1. Vijayalakshmi (9.5 points); 2. Anupama Gokhale (8.5); 3. Bhagyasree Thipsay (8).

Asian Zonal Chess, Madras

Final standing: 1. Dibyendu Barua (8.5 points); 2. Niaz Murshed (8); 3. Sudhakar Babu (7.5).

Women: 1. Bhagyasree Thipsay; 2. Vijayalakshmi; 3. Nisha.

Cricket

Ranji Trophy Bombay beat Punjab in final.



Koss wins 'Owens'

Norwegian speed skater Johann Olav Koss won the 1995 Jesse Owens International Trophy. Koss is the triple gold medal winner at the 1994 winter Olympics, setting world records in the 1500 m, 5000 m, and 10,000 m. races.

The annual award is for the athlete who best personifies excellence in athletic performance and promote sincere cooperation and understanding among peoples of all nations.

Koss received 141 votes. U.S Speed Skater Bonnie Blair was second with 86 and Algerian track star Noureddine Morceli was third with 71.

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ores: Bombay 690, 513 for six. Punjab: 2,141 for two.

ia Cup Cricket, Sharjah India beat Sri Lanka.

Champion's Trophy Cricket, Sharjah

Lanka beat West Indies by 50 runs. Score: Lanka 273 West Indies 223 in 47.3 overs. New Zealand in India:

st Test, Bangalore: India won by 8 wickets. Score: New Zealand 145, 233 India 228, 1 for two.

ond Test Madras: Washed out due to rain. India 144 for 2.

ird Test, Cuttack: Washed out. Score India 6 for 8. New Zealand 175 for 8.

Centenary Cup Limited Overs (Women), New Zealand.

India beat New Zealand by 20 runs in the final. Score: India 200 for 9 in 50 overs; New Zealand 180 for 8 in 50 overs.

Centenary Cup Limited Overs (Men), New Zealand.

Australia beat New Zealand in final.

Eleven's Trophy Limited Overs, Bombay

Eleven beat Bengal by 75 runs. Score: Eleven 299 for 5 in 50 overs. Bengal 224 for six in 50 overs.

Football

European Cup Football

Ajax, Amsterdam beat AC Milan 1-0.

F.A Cup, London Everton beat Manchester United 1-0

UEFA Cup Parma, Italy beat Juventus, Turin 2-1.

European Cup Winners Cup Real Zaragoza, Spain beat Arsenal 2-1.

World Cup (women), Stockholm Norway beat Germany 2-0.

Jawaharlal Nehru Gold Cup Football, Calcutta Iraq beat Russia 1-0.

Santosh Trophy, Madras Bengal beat Punjab 2-1, 25th title for Bengal

Dr. B.C. Roy Trophy Football, Shillong: Bengal beat Punjab 2-0.

All Air Lines Gold Cup Football, Calcutta East Bengal beat Mohun Bagan 2-0

Handball

Senior National Handball Jamshedpur. Services beat Karnataka 25-19.

National Women's Handball, Kochi Kerala

Bhutia: The Sikkim Sensation

Roll the tongue over his name: Bhaichung Bhutia. One can feel the power.. the boom... boom from his boots. The 19 year old Sikkim sensation stole the thunder from all the other glamour boys of Indian football. His foot meets the ball the same way and with the same effect when Sachin Tendulkar's ball meet the ball. Thunder and reworks. That is Bhaichung Bhutia of East Bengal Club and Bengal state.

Bengal's 25th triumph in the Santosh trophy National Championship at Madras is totally indebted to Bhutia's now famous back-volley goal during the extra time. Such presence of mind, cool headedness and accuracy are too much to be expected from school boy.

Bhutia's arrival in Indian football has created the kind of enthusiasm which the game had apparently lost for quite a long time.

He moves like a tiger on the prawl. Dangerous and deceptive. His concentration is total. Bhutia has the uncanny ability to be at the right place at the right time. This is what makes him a terror to any opposition.

He shoots brilliantly from any angle and

brings sensational twists to any contest. Coach Rustam Akhramor feels that Bhaichung Bhutia is the future of Indian football.

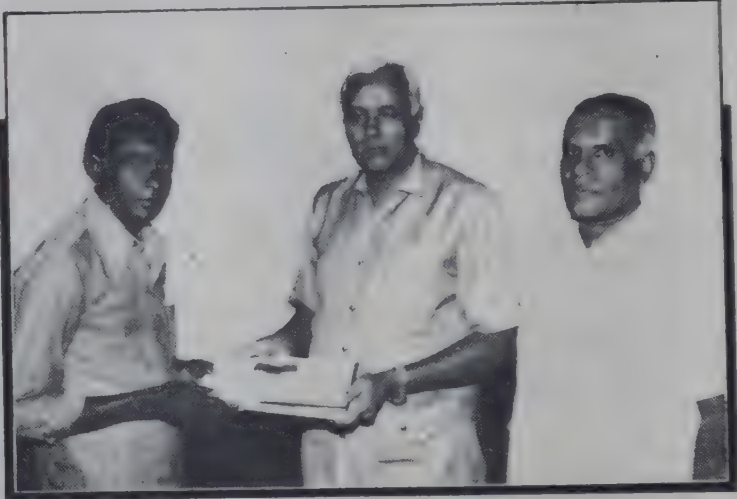
Bhutia came to Calcutta in 1992 as a raw talent. He joined the big league through East Bengal club. He still plays there. Bhutia's talent and ingenuity with the ball came out in all its brilliance.



The pre-Olympic tournament at Margao saw Bhutia's skill, particularly against Pakistan and Oman. The back volley on Scissor

cut made famous by Pele, has become his favourite weapon. This Sikkim school boy has become a star now and Bhutia is probably the only Indian footballer to endorse products!

The Story of the 'Lucky Ramanathan'



Sri Ramanathan (left) receiving the Gold from
Sri S.B. Patil, former Director, Karnataka State Lottery.
Sri K.N. Ramaswamy, Deputy Director
Karnataka State Lottery was present on the occasion.

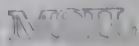
Like everybody, Sri Ramanathan of Ambasamudram, Tirunelveli District, Tamil Nadu, had dreams. With hope in his heart and a prayer on his lip, he gave his luck a try. And lo! His Ticket Number GHB 121383 won the Bumper Prize of Rs.11 lakhs in the 756th Adhrishta Nidhi Bumper Draw held on 26-5-95. Having opted for the prize in Gold, he now wants to start his 'dream business'. We wish him all the best.

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ar	Venue	Final	Total mat- ches	Total Goals goals per match	Top Scorer	Highest goals	
30	Uruguay	Uruguay 4, Argentina 2	18	70	3.89	Guillermo Stabile (Arg)	8
34	Italy	Italy 2, Czechoslovakia 1	17	70	4.12	Angelo Schiavio (Italy)	4
38	France	Italy 4, Hungary 2	18	84	4.67	Oldrich Nejedly (Czec)	4
50	Brazil	Uruguay 2, Brazil 1#	22	88	4.00	Edmond Conen (Ger)	4
54	Switzerland	W.Germany 3, Hungary 2	26	140	5.38	Leonidas Da Silva	8
58	Sweden	brazil 5, Sweden 2	35	126	3.60	Ademir (Brazil)	7
62	Chile	Brazil 3, Czechoslovakia 1	32	89	2.78	Kocsis (Hung)	10
66	England	England 4, W.Germany 2	32	89	2.78	Just Fontaine (France)	13
70	Mexico	Brazil 4, Italy 1	32	95	2.97	Zerchovic (Yug)	5
74	W.Germany	W.Germany 2, Holland 1	38	97	2.55	Eusebio (Portugal)	9
78	Argentina	Argentina 3, Holland 1	38	102	2.68	Gerd Muller (W.Ger)	10
82	Spain	Italy 3, W.Germany 1	52	146*	2.81	Grzegorz Lato (Poland)	7
86	Mexico	Argentina 3, W.Germany 2	52	132*	2.54	Mario Kempes (Arg)	6
90	Italy	W.Germany 1, Argentina 0	52	115*	2.21	Paolo Rossi (Italy)	6
94	USA	Brazil 3, Italy 2	52	141	2.71	Salvatore Schillaci (Italy)	6
					Stoichkov (Belgium),		
					Salenko (Russia)	6	

Final Group Match; * Not including penalty shoot-outs.

Madhya Pradesh 15-13. Third place: Jab.

Hockey

Pan American Gold Cup Hockey, Indigarh. Final standing: 1. India (5 pts); 2. Canada (3); 3. Argentina(2); 4. A (2).

Gandhi Gold Cup Hockey with Korea beat India 3-1. Third place: stralia.

eration Cup Women's Hockey always beat Orissa 3-2.

India National Junior Hockey hi beat Haryana 5-2. European Nations Hockey

many beat Netherlands 2-2 (9-8).

mpions Cup Standings: rmany 2. Australia 3. Pakistan 4. Nether- 5. India 6. England.

an Azlan Sher Khan Trophy a beat Germany 7-6 (2-2)

ble Tennis

onal Table Tennis, Jamshedpur Men:

Kamalesh Mehta (B.S.B) beat Arup Basak (PSCB) 21-19, 21-15, 19-21, 21-17.

Women: M.S. Mythili (TN) beat Anindita Chakravarty (Bengal) 24-22, 17-21, 21-17, 21-15.

Mens Doubles: Kamalesh Sunil Babras beat Sanjay Nimblekar - Mahendra Chiplunkar (Mah.) 21-13, 21-18.

Women's Doubles: Mantu Ghosh Anindita Chakravarty beat Anupam Kanwar - Madhumita Gogoi (Assam) 22-20, 15-21, 21-17.

Team: Men: PSCB beat BSB 3-0.

Women: Bengal beat Tamil Nadu 3-2.

World Table Tennis Chmpionship

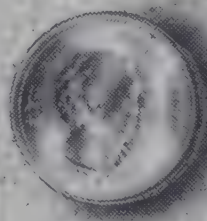
Women: China beat Sweden 3-2

Men: China beat South Korea 5-0.

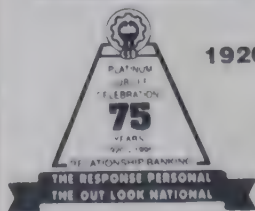
Match Marathon

Chanda Rubin of U.S.A and Patty HysBaulais of Canada fought for 3 hours and 45 minutes at Wimbledon 1995: the longest women's singles match in Grand Slam history. Chanda Rubin won the match 7-6(7-4)6-7(7-5)17-15. The last set alone lasted 2:04.

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ennis

Australian Open Men's Singles: Andre Agassi beat Pete Sampras 4-6, 6-1, 7-6 (8-6) 6-4.
Men's Singles: Mary Pierce (France) beat Arantxa Sanchez (Spain) 6-3, 6-2.

Each Open

Men's Singles: Thomas Muster (Austria) beat Michael Chang (U.S.A) 7-5, 6-2, 6-4.
Women's Singles: Steffi Graf beat Arantxa Sanchez 7-5, 4-6, 6-0.
Men's Doubles: Jacco Eltingh - Paul Harrhuis (Netherlands) beat Nicklas Kulti Magnus Larsson (Sweden) 6-7, 6-4, 6-1.
Women's Doubles: Gigi Fernandez - Natasha Zvereva beat Jana Novotna - Arantxa Sanchez 7-6, 6-4, 7-5.

Wimbledon

Men's Singles: Pete Sampras beat Boris Becker 7-6, 6-2, 6-4, 6-2
Women's Singles: Steffi Graf beat Arantxa

Sanchez 4-6, 6-1, 7-5.

Men's Doubles: T.A Woodbridge-M.Woodforde (Australia) beat R.Leach-S.Melville (U.S) 7-5, 7-6, 7-6.

Women's Doubles: J.Novotna - Arantxa Sanchez beat Gigi Fernandez - Natasha Zvereva 5-7, 7-5, 6-4.

Mixed Doubles: J.Stack - M.Navratilova beat C.Suk - G.Fernandez 6-4, 6-4.

U.S. Open

Men's Singles: Pete Sampras beat Andre Agassi 6-4, 6-3, 4-6, 7-5.

Women's Singles: Steffi Graf beat Monica Seles 7-6 (8-6) 0-6, 6-3

Men's Doubles: Todd Woodridge - Marck Woodforde beat Alex O'Brien - Sandon Stolle 6-3, 6-3.

Women's Doubles: Gigi Fernandez - Natasha Zvereva beat Brendan Schultz - McCarthy - Renee Stubbs 7-5, 6-3.

Costly Wimbledon for Tarango

A dejected yet defiant Jeff Tarango, having been levied the largest fine ever imposed at Wimbledon, defended his combative wife Benedicte and stuck to his charges of 'corrupt' umpire.

"My wife and I had to stand alone and defend ourselves against some overwhelming pressures," he said after \$15,500 in fines were assessed for his match against Alexander Mronz. "We both feel that what we have done is what we were forced to do in desperate moments. We are taking a stance on this issue, and as a result paying a huge price."

The umpire, Bruno Rebeuh, in his official match report said that "on my way back to the referee's office, Mrs. Tarango walked up behind me, pinched and twisted my arm and then slapped my face twice and said, 'Anyway, I will see you again'."

Tarango, in a read statement, said, "I feel there is a great need for someone to stand up for the players, and I would like to thank Mats Wilander, Wayne Ferreira, John McEnroe, Pete Sampras, Scott Melville, the entire (Michael) Joyce family and all other players who supported me."

McEnroe, now an NBC commentator, and owner of Wimbledon's highest previous fine, \$10,000 imposed in 1991 for verbal abuse of a line judge, has criticised Tarango.

Sampras, who grew up in Southern California, disavowed any support and said, "I haven't

talked to him since it happened."

"I didn't support him for what he did on the court," Sampras added. "I mean, that was pretty embarrassing. He's a friend of mine, and I'm really at this point kind of disappointed that it happened."

None of the other players have spoken up publicly in support of Tarango, who claimed that Marc Rosset was one of several players whom Rebeuh had 'given' matches in return for friendship.

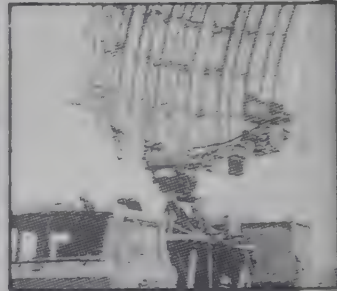
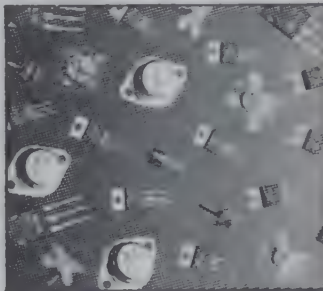
"I'm sorry that Marc Rosset's name came out of this," Tarango said, "and I am sure that he has no involvement."

When the Tarangos marked their first wedding anniversary during the second week of Wimbledon, they had little left with which to celebrate.

Tarango, who earned \$29,984 in his best and worst Grand Slam event, was left with \$2,961 after fines and taxes.

As a third round loser in singles and a second round loser in doubles he got \$28,256, plus \$1,728 in per diem. From that, Wimbledon subtracted \$6,523 in taxes, \$10,000 for verbally abusing the umpire, \$5,000 for defaulting the match, and \$500 for unsportsmanlike conduct: telling spectators to "shut up". And, \$5,000 was deducted for a fine he received for elbowing a spectator at the French Open.

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Vis Cup

India vs Hong Kong, Calcutta: India won 4-1.
India vs Phillipines, New Delhi: India won 5-

India vs Croatia, New Delhi: India beat Croatia

International Hard Court Tennis:

Bangalore: Men's Singles: P. Srinath (Karnataka) beat K.G. Ramesh (Tamil Nadu) 4-7, 5-7, 5-6, 2-6 Women's Singles.

K.V.Nirupama (TN) beat Jhanvi Parekh (Mah) 6-3, 6-30.

Volleyball

National Volleyball: Madras: Men: Tamil Nadu beat Railways 6-15, 15-12, 8-15, 15-10, 15-13. Women: Railways beat Kerala 15-4, 15-4, 15-0. Sports Panorama

Asian Games, Hiroshima

Final Medal Standings

Countries	Gold	Silver	Bronze	Total
China	137	92	60	289
Korea	63	53	63	179
Japan	59	68	80	207
Kazakhstan	25	26	26	77
Uzbekistan	10	11	19	40
Iran	9	9	8	26
Taipei	7	12	24	43
India	4	3	15	22
Thailand	4	2	13	19
Qatar	4	1	5	10
Indonesia	3	12	11	26
Malaysia	3	3	1	7
Philippines	3	2	8	13
Saudi Arabia	3	1	5	9
Thailand	1	11	13	25
Saudi Arabia	1	3	5	9
Uzbekistan	1	3	3	7
Angola	1	2	6	9
Vietnam	1	2	0	3
Singapore	1	1	5	7
Hong Kong	0	5	7	12
Pakistan	0	4	6	10
Kyrgyzstan	0	4	5	9
Ukraine	0	2	2	4
Ukraine	0	1	3	4
Ukraine	0	1	1	2
Lanka	0	1	1	2
Bangladesh	0	1	0	1
Ukraine	0	0	2	2
Myanmar	0	0	2	2
Ukraine	0	0	2	2
Ukraine	0	0	2	2

 Athletics

100 m			
Tal Mansoor (Qatar)	10.18	GR	
aly Savin (Kazakhstan)	10.29		

Chen Wenzhong (China)	10.38		
Satoru Inoue (Japan)	10.41		
Mardi Lestari (Indonesia)	10.52		
Yoshitaka Ito (Japan)	10.53		

200 m

Talal Mansoor (Qatar)	20.41	AR	
Koji Ito (Japan)	20.70		
Ibrahim Ismail (Qatar)	20.88		
Tao Wu-Shinu (Taipei)	20.93		
Kazuhiro Takahashi (Japan)	21.01		
Zhao Cunlin (China)	21.07		

400 m

Ibrahim Ismail (Qatar)	45.48		
Shon Ju-II (Korea)	45.87		
Aktawat Sakulchun (Thailand)	46.50		
Seiji Inagaki (Japan)	46.65		
Shigekazu Omori (Japan)	47.29		
Mohamed Al Beshi (Saudi Arabia)	47.53		

800 m

Lee Jin-II (Korea)	1:45.72	GR	
Mu Weiguo (China)	1:46.44		
Kim Yong-Hwan (Korea)	1:46.69		
Mohamed Suleiman (Qatar)	1:46.82		
Yoshito Konno (Japan)	1:47.16		
A. Abdulla (Qatar)	1:48.52		

1500 m

Mohamed Suleiman (Qatar)	3:40.00	GR	
Mu Weiguo (China)	3:40.93		
Mitsuhiro Okuyama (Japan)	3:41.31		
Hamid Sadjadi Hezaveh (I.R.Iran)	3:42.37		
Moradifar Malekshir (I.R. Iran)	3:43.49		
Yasunari Oba (Japan)	3:45.50		

5000 m

Toshinari Takaoka (Japan)	13:38.37	GR	
Ahmad Ibrahim Warsama (Qatar)	13:39.59		
Sun Ripeng (China)	13:40.07		
Bahadur Prasad (India)	13:51.25		
Katsuhiko Hanada (Japan)	13:59.63		
Gao Shuhai (China)	14:00.52		

10000 m

Toshinari Takaoka (Japan)	28:15.48	GR	
Jun Hiratsuka (Japan)	28:18.10		

Olyan Al-Qahatani (Saudi Arabia)	28:41.18
Bahdur Prasad (India)	28:55.02
Abdulla Yousef Abdulla (Qatar)	29:06.23
Awwad Hasini (Jordan)	29:24.35

110 m hurdles

Li Tong (China)	13.30	GR
Chen Yanhao (China)	13.39	
Nur Herman Majid (Malaysia)	13.73	
Nobuaki Hoki (Japan)	13.76	
Takahiro Matsuhisa (Japan)	13.76	
R. Al-Abdulla (Qatar)	13.98	

400m hurdles

Shunji Karube (Japan)	49.13	GR
Yoshihiko Saito (Japan)	49.13	
Ali Ismail Doka (Qatar)	49.56	
Chanon Keanchan (Thailand)	49.89	
Amin Muhammad (Pakistan)	49.90	
Hadi S.M. Somayli (Saudi Arabia)	50.58	

3000 m steeplechase

Sun Ripeng (China)	8:31.73	GR
S. Shaddad Al-Asmari (Saudi Arabia)	8:33.94	
Yasunori Uchitomi (Japan)	8:37.76	
Hamid Sadjadi Hezaveh (I.R. Iran)	8:37.87	
Gao Shuhai (China)	8:43.98	
Jamal Abdi Hassan (Qatar)	8:44.88	

High Jump

Takahisa Yoshida (Japan)	2.27
Lee Jin-Taek (Korea)	2.24
Xu Yang (China)	2.24
Tao Rui (China)	2.21
Loo Loh Kum Zee (Malaysia)	2.18
Igor Pakline (Kyrgyzstan)	2.15

Pole vault

Igor Potapovich (Kazakhstan)	5.65	GR
Grigory Yegorov (Kazakhstan)	5.50	
Kim Chul-Kyun (Korea)	5.40	
Teruyasu Yonekura (Japan)	5.40	
Toshiyuki Hashioka (Japan)	5.40	
Waleed Zayed Al-Shamali (Qatar)	4.80	

Long jump

Huang Geng (China)	8.34	GR
Huang Baoting (China)	8.12	



**Wang Junxia and Qu Yunxia of China:
Medals aplenty**

Konstantin Sarnatski (Uzbekistan)	8.10
Chao Chih—Kuo (Taipei)	8.02
Sung Hee-Joon (Korea)	7.96
Nai Hui-Fang (Taipei)	7.90

Triple jump

Oleg Sakirkin (Kazakhstan)	17.21
Takashi Komatsu (Japan)	16.88
Sergey Arzamasov (Kazakhstan)	16.57
Park Min-Soo (Korea)	16.40
Zou Sixin (China)	16.29
Vladimir Chernikov (Uzbekistan)	16.23

Shot put

Liu Hao (China)	19.26
Sergey Roubtsov (Kazakhstan)	19.24
Xie Shengying (China)	18.64
Sergei Kot (Uzbekistan)	18.44
Bilal Saad Mubarak (Qatar)	18.09
Avtar Singh (India)	17.53

Discus

Zhang Cunbiao (China)	58.78
Ma Wei (China)	57.92
Vadim Popov (Uzbekistan)	56.78
Shakti Singh (India)	56.46
Dashdendev Mahashiri (Mongolia)	54.90
Ajit Bhaduria (India)	53.82

Hammer

Bi Zhong (China)	72.24
Koji Murofushi (Japan)	67.48
Aqarab Abbas (Pakistan)	66.70
Nobuhiro Todoriki (Japan)	63.99
Waleed Albakheet (Kuwait)	62.12
N. Alhusaini (Kuwait)	60.26

Javelin

Zhang Lianbiao (China)	83.38
Vladimir Parfenov (Uzbekistan)	81.66
Victor Zaitsev (Uzbekistan)	78.64
Kim Ki-Hoon (Korea)	73.20
Kazuhiro Mizoguchi (Japan)	71.74
Yasuo Nakamura (Japan)	71.22

Decathlon

Ramil Ganiev (Uzbekistan)	8055
Oleg Veretelnikov (Uzbekistan)	7702
Tomokazu Sugama (Japan)	7660
Kim Tae-Keun (Korea)	7649
Munehiro Kaneko (Japan)	7621
A. Al-Sahrani (Saudi Arabia)	6533

Marathon

Hwang Young-Jo (Korea)	2:11:13
Toshiyuki Hayata (Japan)	2:11:57
Kim Jae-Ryong (Korea)	2:13:12
Hu Gangjun (China)	2:15:28
Zhang Fukui (China)	2:16:36
Kenichi Suzuki (Japan)	2:19:59

20 km walk

Chen Shaogun (China)	1:21:15
Bu Lingtang (China)	1:21:56
Valery Borisov (Kazakhstan)	1:25:31
Tsutomu Takushima (Japan)	1:27:03
Hirofumi Sakai (Japan)	1:27:44

h Ki-Yeon (Korea)	1:28:29		Zhang Linli (China)	8:52.97	GR
5 km walk			Harumi Hiroyama (Japan)	8:53.74	
guei Korepanov (Kazakhstan)	3:54:37	GR	Lu Qu (China)	8:58.68	
nino Imamura (Japan)	3:56:16		Michiko Zhimizu (Japan)	9:01.02	
ahiro Kosaka (Japan)	4:05:00		Khin Khin Htwe (Myanmar)	9:04.56	
Guohong (China)	4:23:09		Molly Chacko (India)	9:06.42	
100m relay			10000m		
an	39.37		Wang Junxia (China)	30:50.34	GR
na	39.45		Dong Li (China)	31:31.08	
ar	39.71		Miki Igarashi (Japan)	31:45.82	
nese Taipei	39.77		Mariko Hara (Japan)	32:20.79	
iland	39.90		Pa Pa (Myanmar)	34:49.75	
onesia	40.14		100m hurdles		
200m relay			Olga Chichigina (Kazakhstan)	12.80	
ea	3:10.19		Zhou Hongyang (China)	12.87	
iland	3:10.33		Zhang Yu (China)	12.90	
ar	3:10.59		Sriyani Kulawansa (Sri Lanka)	13.55	
an	3:10.91		Sau Ying Chan (Hong Kong)	13.59	
a	3:12.10		Naoko Kobayashi (Japan)	13.65	
di Arabia	3:12.65		400m hurdles		
men			Han Qing (China)	54.74	GR
50m			Leng Xueyan (China)	55.26	
Xiaomei (China)	11.27	GR	Hsu Pei-Chin (Taipei)	55.75	
g Huei-Chen (Taipei)	11.41		Natalya Torchina (Kazakhstan)	55.81	
ng Xiaoyan (China)	11.43		Reawadee Watanasin (Thailand)	56.25	
hie Kitada (Japan)	11.58		Sahoko Jodo (Japan)	57.86	
nita Panda (India)	11.61		High jump		
anthika Jayasinghe (Sri Lanka)	11.63		Svetlana Mounkova (Uzbekistan)	1.92	
100m			Svetlana Zalevskaya (Kazakhstan)	1.89	
g Huei-Chen (Taipei)	23.34	GR	Rassamee Taemsri (Thailand)	1.83	
anthika Jayasinghe (Sri Lanka)	23.57		Yoko Ota (Japan)	1.80	
ayanathi Darsha (Sri Lanka)	23.61		Chinami Sadahiro (Japan)	1.80	
Usha (India)	24.29		Oksana Maiboroda (Kyrgyzstan)	1.80	
anfah Inchareon (Thailand)	24.49		Long jump		
jun Dokduang (Thailand)	24.56		Yao Weili (China)	6.91	GR
200m			Li Jing (China)	6.69	
Yuqin (China)	51.17	GR	Elma Muros (Philippines)	6.41	
ng Hengyun (China)	52.53		Yelena Selina (Kazakhstan)	6.22	
aramma (India)	52.57		Ayumi Sasaki (Japan)	6.17	
y Wilson (India)	52.64		Lim Sook-Hyun (Korea)	6.14	
ue Tanaka (Japan)	54.56		Shot put		
dang Phimphe (Thailand)	54.64		Sui Xinmei (China)	20.45	
300m			Zhang Liuhong (China)	19.25	
Junxia (China)	1:59.85	GR	Sunisa Yooyao (Thailand)	16.24	
Li (China)	2:00.66		Lee Myung-Sun (Korea)	16.10	
y Wilson (India)	2:02.22		Aya Suzuki (Japan)	15.32	
irmoyee Sikdar (India)	2:05.52		Hiroko Shinozaki (Japan)	15.12	
iko Okamoto (Japan)	2:07.05		Discus		
teo Dang (Vietnam)	2:07.72		Min Chunfeng (China)	62.52	
400m			Ikuko Kitamori (Japan)	53.92	
Junxia (China)	4:12.48	GR	Miyoko Nakanishi (Japan)	49.84	
Wei (China)	4:13.32		Sunisa Yooyao (Thailand)	48.60	
Khin Htwe (Myanmar)	4:18.00		Chung Hye-Young (Korea)	44.22	
rmoyee Sikdar (India)	4:18.65		Javelin		
iko Ichikawa (Japan)	4:23.63		Oksana Yarygina (Uzbekistan)	64.62	
y Chacko (India)	4:25.87		Lee Young-Sun (Korea)	62.30	
500m			Ha Xiaoyan (China)	62.08	
			Akiko Miyajima (Japan)	55.28	
			Chizuru Mizuno (Japan)	51.42	

Heptathlon

Ghada Sheaa (Syria)	6360	GR
Zhang Xiaohui (China)	5800	
Ma Chun-Ping (Taipei)	5786	
Svetlana Kazanina (Kazakhstan)	5508	
Kim Nan-Young (Korea)	5182	
Kuriya Toyomori (Japan)	5146	

Marathon

Zhong Huandi (China)	2:29:32	GR
Zhang Lirong (China)	2:36:27	
Nobuko Funimura (Japan)	2:37:03	
Jung Young-Im (Korea)	2:38:43	
Htar Htar Shwe (Myanmar)	2:54:15	
Lai Chu Ng (Hong Kong)	2:57:40	

10 km walk

Gao Hongmiao (China)	44:11	GR
Gu Yan (China)	44:18	
Yuko Sato (Japan)	46:51	
Emi Hayashi (Japan)	46:57	

4x100m relay

China	43.85	GR
Thailand	44.46	
Japan	44.57	
Chinese Taipei	44.58	
India	44.81	
Sri Lanka	44.97	

4x400m relay

China	3:29:11	GR
India	3:33:84	
Thailand	3:37.76	
Japan	3:40.74	

Archery**Women's Individual FITA Olympic Round**

1. Lee Eun-Kyoung (Korea)
2. Lim Jung-Ah (Korea)
3. Han Hee-Jeong (Korea)
4. Jargal Otgon (Mongolia)
5. He Ying (China)
6. Rusena Gelanteh (Indonesia)

New Records

Lim Jung-Ah (Korea); final round: 655 FWR
 Lee Eun-Kyoung (Korea); 70-metre round: 337 GR
 Lim Jung-Ah (Korea); 30-metre round: 356 GR

Women's Team FITA Olympic Round

1. China (He Ying; Lin Sang; Wang Xiaozhu)
2. Indonesia (Purnama Pandiangan; Dahliana Dahliana, Rusena Gelanteh)
3. Korea (Han Hee-Jeong; Lim Jung-Ah; Lee Eun-Kyoung)
4. Chinese Taipei (Lin Yi-Yin; Yang Chun-Chi; Yang Hui-Ju)
5. Kazakhstan (Irina Leonova; Elena Serova; Iana Touniants)
6. Japan (Kaori Mitsuyama; Ai Ouchi; Yagi Kaori)

New Records:

Korea (Han Hee-Jeong; Lim Jung-Ah; Lee Eun-

Kyoung) qualification round: 4,042 points

Men's Individual FITA Olympic Round

1. Park Kyung-Mo (Korea)
2. Chung Jae-Hun (Korea)
3. Wu Tsung-Yi (Chinese Taipei)
4. Han Seung-Hoon (Korea)
5. Oh Kyo-Moon (Korea)
6. Fu Shengjun (China)

New Records

Chung Jae-Hun (Korea); 50-metre round points GR.

Vladimir Echeev (Kazakhstan); 30-metre round: 357 points GR.

Men's Team FITA Olympic Round

1. Korea (Chung Jae-Hun; Oh Kyo-Moon; Kyung-Mo)
2. Japan (Takayoshi Matsushita; Sa Nishikawa; Hiroshi Yamamoto)
3. Kazakhstan (Vital Chin; Vadim Chilikov; Vladimir Echeev)
4. China (Fu Shengjun; Sun Wei; Fu Jia)
5. India (Limba Ram; Rajender Guiya; L Sanga Chhangte)
6. Chinese Taipei (Wu Tsung-Yi; Lin Pin; Lin Cheng-Hsien)

New Records

Korea (Chung Jae-Hun; Han Seung-Hoon; Oh Kyo-Moon); qualif. round: 3,980 GR
 Korea (Chung Jae-Hun; Oh Kyo-Moon; Kyung-Mo); final: 259 FWR

Badminton**Men's Team**

1. Indonesia
2. Korea
3. China
3. Malaysia
5. Thailand
5. Japan
5. Chinese Taipei
5. Maldives

Women's Team

1. Korea
2. Indonesia
3. Japan
3. China
5. Hong Kong
5. Thailand

Men's Singles

1. Heriyanto Arbi (Indonesia)
2. Joko Suprianto (Indonesia)
3. Kim Hak-Kyun (Korea)
3. Dong Joing (China)
5. Lin Liwen (China)
5. Fumihiko Machida (Japan)
5. Ewe Hock Ong (Malaysia)
5. Park Sung-Woo (Korea)

Men's Singles

ng Soo-Hyun (Korea)
 sako Mizui (Japan)
 si Susanti Hadinoto (Indonesia)
 Zhaoying (China)
 n Jingna (China)
 rnsawan Plungwech (Thailand)
 kako Ida (Japan)
 liani Sentosa (Indonesia)

s Doubles

xy Ronald Mainaky and Ricky Achmad
 agja (Indonesia)
 on Kit Cheah and Beng Kiang Soo
 alysia)
 en Kang and Chen Hongyong (China)
 ng Xin and Huang Zhanzhong (China)
 ng Kyun-Jin and Lee Suk-Ho (Korea)
 n Her Tan and Kim Hock Yap (Malaysia)
 krapee Thongsari and Pramote
 rawiwatana (Thailand)
 ji Matsuno and Shinji Matsuura (Japan)

Men's Doubles

m Eun-Jung and Jang Hye-Ock (Korea)
 ing So-Young and Gil Young-Ah (Korea)
 Fei and Gu Jun (China)
 nomi Matsuo and Kyoko Sasage (Japan)
 iko Hirota and Yuko Koike (Japan)
 sa Elysa and Zelin Resiana (Indonesia)
 Wai Tan and Wai Leng Lee (Malaysia)
 rsih Finarsih and Lily Tampi (Indonesia)

Doubles

Young-Sung and Chung So-Young
)
 g Kyung-Jin and Jang Hye-Ock (Korea)
 Hock Yap and Wai Leng Lee (Malaysia)
 nawan Gunawan and Elysa Elysa
 esia)
 Jianjun and Ge Fei (China)
 ji Matsno and Tomomi Matsuo (Japan)
 n Kit Cheah and Lee Wai Tan (Malaysia)
 n Xingdon and Gu Jun (China)

eball**Standings**

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 ese Taipei
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 golia

etball**Final Standings**

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**Sun Shuwei, China: Diving Gold**

5. Kazakhstan
6. Chinese Taipei
7. Saudi Arabia
8. I.R. Iran
9. United Arab Emirates

Women's Final Standings

1. Korea
2. Japan
3. China
4. Chinese Taipei
5. Kazakhstan
6. Thailand

Bowling**Men's Singles**

1. Lin Han Chen (Chinese Taipei) 1,310 GR
2. Hendro Pratono (Indonesia) 1,292
3. Richard Sin Mo Phua (Malaysia) 1,286
4. Kengo Tagata (Japan) 1,283
5. Saed Hadi Al-Hajri (Qatar) 1,280
6. Mohammed Al Qubaisi (UAE) 1,258

Men's Doubles

1. Kengo Tagata and Hiroshi Yamamoto (Japan) 2,607 GR
2. Min Cheol-Ki and Suh Kuk (Korea) 2,527
3. Faraj Nasser Al Marri and Mohammed Al Qubaisi (UAE) 2,511
4. Soud Mesfer Al-Hajri and Mohamed Hazeem Al-Muraikhi (Qatar) 2,501
5. Him Chung and Kam Wah Lau (Hong Kong) 2,475
6. Seri Kruasing and Saravut Maneerat (Thailand) 2,460

Men's Trios

1. Japan (Kengo Tagata; Hiroshi Yamamoto; Kosaku Tatemoto) 3,789 GR
2. Korea (Min Cheol-Ki; Suh Kuk; Byun Ho-Jin) 3,662
3. UAE (Faraj Nasser Al Marri; Mohamed Alghazal; Mohammed Al Qubaisi) 3,627

4. Chinese Taipei (Lin Han Chen; Tsai Yao Min; Tsai Chun Lin) 3,583
5. Chinese Taipei (Ou Nai Cheng; Hsieh Tung Jung; Chen Yung Tai) 3,581
6. Qatar (Khalifa Ali Al-Kubaisi; Soud Mesfer Al-Hajri; Saed Hadi Al-Hajri) 3,566

Men's 5 - player team

- | | | |
|----------------|-------|----|
| 1. Korea | 6,029 | GR |
| 2. Philippines | 6,012 | |
| 3. Japan | 5,968 | |
| 4. Malaysia | 5,951 | |
| 5. Hong Kong | 5,881 | |
| 6. Qatar | 5,863 | |

Men's All-events

- | | | |
|--------------------------------|-------|----|
| 1. Kengo Tagata (Japan) | 5,036 | GR |
| 2. Mohammed Al Qubaisi (UAE) | 4,963 | |
| 3. Min Cheol-Ki (Korea) | 4,932 | |
| 4. Saravut Maneerat (Thailand) | 4,913 | |
| 5. Hiroshi Yamamoto (Japan) | 4,910 | |
| 6. Suh Kuk (Korea) | 4,892 | |

Men's Masters

1. Hiroshi Yamamoto (Japan)
2. Tsai Chun Lin (Chinese Taipei)
3. Saed Hadi Al-Hajri (Qatar)
4. Lin Han Chen (Chinese Taipei)
5. Him Chung (Hong Kong)
6. Kosaku Tatemoto (Japan)

Women's Singles

- | | | |
|-------------------------------|-------|----|
| 1. Kim Sook-Young (Korea) | 1,347 | GR |
| 2. Noriko Inauchi (Japan) | 1,226 | |
| 3. Grace Young (Singapore) | 1,218 | |
| 4. Shalin Zulkifli (Malaysia) | 1,213 | |
| 5. Kim Hong Kang (Singapore) | 1,210 | |
| 6. Naoko Sekine (Japan) | 1,203 | |

Women's Doubles

- | | | |
|--|-------|----|
| 1. Kim Sook-Young and Kim Young-Sim (Korea) | 2,470 | GR |
| 2. Lydia Poh Ling Kwah and Chew Chun Shirley Chow (Malaysia) | 2,419 | |
| 3. Tomomi Shibata and Naoko Sekine (Japan) | 2,375 | |
| 4. Miu Chu Choi and Kuk Hung Che (Hong Kong) | 2,372 | |
| 5. Sri Mulyani Ruzgar and Karine Ulfah Biemby (Indonesia) | 2,364 | |
| 6. Grace Young and Kim Hong Kang (Singapore) | 2,358 | |

Women's Trios

- | | | |
|--|-------|----|
| 1. Malaysia (Lydia Poh Ling Kwah; Chew Chun Shirley Chow; Shalin Zulkifli) | 3,734 | GR |
| 2. Japan (Atsuko Asai; Noriko Inauchi; Kumiko Inatsu) | 3,504 | |
| 3. Korea (Kim Sook-Young; Kim Min-Jung; Lee Ji-Yeon) | 3,495 | |
| 4. Korea (Kim Young-Sim; Kim Sung-Hee; Kim Min-Soo) | 3,487 | |
| 5. Chinese Taipei (Chen Ling; Yang Lin Hua; Chou Miao Lin) | 3,484 | |

6. Philippines (Olivia 'Bong' Garcia; Rebecca Watanabe; Irene Garcia) 3,474

Women's 5 - player team

- | | |
|-------------------|-------|
| 1. Chinese Taipei | 5,831 |
| 2. Japan | 5,820 |
| 3. Korea | 5,698 |
| 4. Malaysia | 5,695 |
| 5. Hong Kong | 5,670 |
| 6. China | 5,591 |
| 6. Philippines | 5,593 |

Women's All Events

- | | |
|---------------------------------------|-------|
| 1. Shalin Zulkifi (Malaysia) | 5,016 |
| 2. Kim Sook-Young (Korea) | 4,968 |
| 3. Lydia Poh Ling Kwah (Malaysia) | 4,761 |
| 4. Naoko Sekine (Japan) | 4,755 |
| 5. Grace Young (Singapore) | 4,750 |
| 6. Pop Maryke G.K. Tambis (Indonesia) | 4,745 |
| 6. Kim Young-Sim (Korea) | 4,745 |

Women's Masters

1. Lee Ji-Yeon (Korea)
2. Kim Sook-Young (Korea)
3. Irene Garcia (Philippines)
4. Grace Young (Singapore)
5. Kumiko Inatsu (Japan)
6. Ka Ling Yeung (Hong Kong)

Boxing**Light Fly weight**

1. Mansueto Velasco (Philippines)
2. Pramuanasak Phosuwan (Thailand)
3. Birju Sah (India)
3. Hermensen Ballo (Indonesia)
5. Kazumasa Tsujimoto (Japan)
5. Boulat Djoumadiloy (Kazakhstan)
5. Om Kumar Maskey (Nepal)
5. Abdur Rashid Qumbrani (Pakistan)

Fly weight

1. Recaido Elias (jr) (Philippines)
2. Kenji Nakazono (Japan)
3. Ali Mohammad Kambrani (Pakistan)
3. Vichai Khadpo (Thailand)
5. San Hla Lay (Myanmar)
5. Shin Dong-Kil (Korea)
5. Bishnu Bahadur Singh (Nepal)
5. Khikmatulla Akhmedov (Uzbekistan)

Bantamweight

1. Yeom Jong-Kil (Korea)
2. Khaliq Abdul (Pakistan)
3. Gurmeet Singh (India)
3. Anthony Igusquisa (Philippines)
5. Bektas Aboubakirov (Kazakhstan)
5. T. Davaatseren (Mongolia)
5. Umesh Katuwal (Nepal)
5. N. Wallsundera (Sri Lanka)

Featherweight

1. Somluck Kamsing (Thailand)
2. Zaigham Maseel (Pakistan)

mo Michel Bahari (Indonesia)
ic Canoy (Philippines)
nzhi Zhou (China)
nkatesan Devarajan (India)
ng-Oh Kang (Korea)
Abdullaev (Uzbekistan)

Lightweight

uyoshi Yaegashi (Japan)
aleo Somwong (Thailand)
Seghaier (Saudi Arabia)
kmourat Durdiev (Turkmenistan)
hammad Homayun (Afghanistan)
mentsetseg Uitumen (Mongolia)
meo Brin (Philippines)
ssein Osman (Syria)

Light Welterweight

ynaldo Galido (Philippines)
man Ullah Khan (Pakistan)
lat Niasymbetov (Kazakhstan)
rnchai Thongburan (Thailand)
mitaka Nitami (Japan)
amtay Daomanivone (Laos)
ensmaa Enhsaihan (Mongolia)
rkhad Bakirov (Uzbekistan)

Light Heavyweight

urjan Smanov (Kazakhstan)
kom Chengiai (Thailand)
houshiravan Nourian (I.R. Iran)
irman Ataev (Uzbekistan)
rgazy Arziev (Kyrgyzstan)
on Lee (Korea)
o Chavez (Philippines)
radin Atakov (Turkmenistan)

Light Middleweight

natbek Chagataev (Kazakhstan)
ng Pan (China)
hammad Ghyass Teifour (Syria)
theap Wongsuntorn (Thailand)
adollah Johari (I.R. Iran)
on Young-Chan (Korea)
om Berdiev (Uzbekistan)
adaajav Bat-Orshih (Mongolia)

Light Heavyweight

e Seung-Bae (Korea)
kadii Topaev (Kazakhstan)
en Tao (China)
shod Yarbekov (Uzbekistan)
o Bahari (Indonesia)
mak Varzideh (I.R. Iran)
rokuni Moto (Japan)
nan Kaddour (Syria)

Light Heavyweight

ourttaghi Ghushchi (I.R. Iran)
Young-Sam (Korea)
cha Singh (India)
ssili Jirov (Kazakhstan)
itra Bhadur Gurung (Nepal)
ghar Ali (Pakistan)
nur Ibragimov (Uzbekistan)



N. Kunjarani wins the first medal — bronze — for India

Heavyweight

1. Alisher Avezbaev (Uzbekistan)
2. Yousff Harron Hawsawi (Saudi Arabia)
3. Jiang Tao (China)
3. Bahman Azizpour (I.R. Iran)
5. Serguei Philipovitch (Kyrgyzstan)
5. Chae Sung-bae (Korea)
5. Damdinbazar Ganzorig (Mongolia)
5. Raj Kapur Thapaliya (Nepal)

Super Heavyweight

1. Oleg Mascaev (Uzbekistan)
2. M. Samadi Kalkhoran (I.R. Iran)
3. Sifarash Khan (Pakistan)
3. Raj Kumar Sangwan (India)
5. Viktor Chtorm (Kazakhstan)
5. An Jung-Hyun (Korea)

Canoeing

Women's 500 metres Kayak Singles

- | | |
|----------------------------|---------|
| 1. Dong Ying (China) | 1:58.46 |
| 2. I. Lyalina (Uzbekistan) | 2:03.55 |
| 3. S. Choi (Korea) | 2:04.83 |
| 4. S. Maruyama (Japan) | 2:06.12 |
| 5. M. Ku Appan (India) | 2:10.16 |
| 6. L. Leong (Macau) | 2:24.96 |

Women's 500 metres Kayak Pairs

- | | |
|---|---------|
| 1. Gao Beibei and Zhao Xiaoli (China) | 1:45.81 |
| 2. M. Kobayashi and Keiko Muto (Japan) | 1:49.50 |
| 3. I. Jouravleva and I. Issakova (Uzbekistan) | 1:54.43 |
| 4. S. Choil and S. Hong (Korea) | 1:58.83 |
| 5. Jessymol and S. Saroar (India) | 2:01.27 |

Women's 500 metres Kayak Fours

- | | |
|---------------|---------|
| 1. China | 1:37.93 |
| 2. Uzbekistan | 1:47.11 |
| 3. Japan | 1:47.11 |
| 4. Korea | 1:48.63 |

5. India 1:52.30

Men's 500 metres Kayak Singles

1. Ivan Kireev (Uzbekistan) 1:46.59
2. Xu Jiguang (China) 1:47.06
3. E. Egorov (Kazakhstan) 1:47.44
4. A. Mitjkovets (Kyrgyzstan) 1:51.02
5. Anisi Anisi (Indonesia) 1:54.89
6. T. Ariga (Japan) 1:55.11

Men's 500 metres Canadian Canoe Singles

1. Zhang Lei (China) 1:58.40
2. K. Negodiaev (Kazakhstan) 1:58.54
3. C. Park (Korea) 2:01.51
4. E. Astanin (Uzbekistan) 2:03.73
5. T. Uchino (Japan) 2:05.28
6. B. Worobay (Indonesia) 2:09.09

Men's 500 metres Kayak Pairs

1. Chen Guiqui and Jiang Yuguo (China) 1:35.23
2. V. Kazantsev and A. Kolganov (Uzbekistan) 1:35.28
3. Dmitri Izaak and S. Skrypnik (Kazakhstan) 1:37.22
4. Kalashnikov and A. Mitjkovets (Kyrgyzstan) 1:41.09
5. Nam Sung-Ho and Kim Soo-Yul (Korea) 1:43.18
6. S. Kurokawa and W. Tanaka (Japan) 1:43.43

Men's 500 metres Canadian Canoe Pairs

1. K. Negodiaev and S. Sergueev (Kazakhstan) 1:46.29
2. Zhang Guang and Zhang Lei (China) 1:47.36
3. A. Gorelov and V. Sorokin (Uzbekistan) 1:47.44
4. C. Lee and S. Lee (Korea) 1:48.55
5. F. Okawa and K. Takara (Japan) 1:51.16
6. J. Raomal and S. Sadanandan (India) 1:56.52

Men's 500 metres Kayak Fours

1. China 1:26.31
2. Uzbekistan 1:26.46
3. Korea 1:29.17

Men's 1000 metres Kayak Singles

1. Ivan Kireev (Uzbekistan) 3:44.50
2. Xu Jiguang (China) 3:45.97
3. E. Egorov (Kazakhstan) 3:49.55
4. A. Mitjkovets (Kyrgyzstan) 3:51.99
5. Agus Ruhiat (Indonesia) 3:59.89
6. Oleg Graour (Turkmenistan) 4:09.84

Men's 1000 metres Canadian Canoe Singles

1. Zhang Lei (China) 4:10.36
2. E. Astanin (Uzbekistan) 4:16.99
3. C. Park (Korea) 4:21.94
4. K. Takara (Japan) 4:22.08
5. S. Sergueev (Kazakhstan) 4:33.14

Men's 1000 metres Kayak Pairs

1. Dmitri Izaak and S. Skrypnik

- (Kazakhstan) 3:26.77
2. V. Kazantsev and A. Kolganov (Uzbekistan) 3:29.97
3. Kim Soo Yul and Nam Sung Ho (Korea) 3:32.49
4. Chen Guiqui and Jiang Yuguo (China) 3:36.83
5. K. Pijush and R. Singh (India) 3:46.15
6. V. Zarubin and Kalashnikov (Kyrgyzstan) 3:49.06

Men's 1000 metres Canadian Canoe Pairs

1. K. Negodiaev and S. Sergueev (Kazakhstan) 3:51.58
2. Qiu Suoren and Song Tianjun (China) 3:53.34
3. A. Gorelov and V. Sorokin (Uzbekistan) 3:54.30
4. J. Raomal and S. Sadanandan (India) 4:03.88
5. Shinji Abe and F. Okawa (Japan) 4:07.33

Men's 1000 metres Kayak Fours

1. Uzbekistan 3:08.60
2. China 3:10.33
3. Korea 3:14.07
4. Kyrgyzstan 3:14.33
5. Japan 3:21.22
6. India 3:27.22

Cycling

Men's Sprint

1. Toshinobu Saito (Japan)
2. Hyun Byung-Chul (Korea)
3. Toshiyuki Ono (Japan)
4. N. Nur Rochman (Indonesia)
5. Valerii Potapov (Turkmenistan)
6. Kim Young-Sub (Korea)

New Records

Toshinobu Saito (Japan); men's sprint qualifying heats: 10.733 seconds

Men's 1 km Time Trial

1. Masanaga Shiohara (Japan) 1:05.83
2. Hong Suk-Han (Korea) 1:06.33
3. Won Chang-Yong (Korea) 1:07.22
4. Alexandre Nadobenko (Kazakhstan) 1:08.07
5. Valerii Potapov (Turkmenistan) 1:08.07
6. Lin Hsin Yu (Chinese Taipei) 1:08.42

Men's 4 km Individual Pursuit

1. Vadim Kravtchenko (Kazakhstan) 4:40.53
2. Evgeniy Vakker (Kyrgyzstan) 4:40.73
3. Guo Longchen (China) 4:52.33
4. Susumu Oikawa (Japan) 4:53.03
5. Majid Naseri Kohorran (I.R. Iran) 4:53.03
6. Hisashi Matsui (Japan) 4:53.13

New Records

Vadim Kravtchenko (Kazakhstan); Men's 4 km individual pursuit qualification



's Mohamed Riaz baulked by
ladesh's Mamunur Rashid:Hockey

ats: 4 minutes, 35.571 seconds GR

's Individual 40 km Points Race

no Ho-Sung (Korea) 44 points

(52:1.123)

dim Kravtchenko (Kazakhstan) 43

hihiro Osawa (Japan) 24

rk Min-Soo (Korea) 23

en Deng Tien (Chinese Taipei) 13

iroshi Daimon (Japan) 11

's Individual 169.44 km Road Race

drei Kivilev (Kazakhstan) 4:31:53

exandre Vinokourov

zakhstan) 4:31:53

ng Xuezhong (China) 4:32:07

m Po Wong (Hong Kong) 4:32:11

drei Mouzourov (Kazakhstan) 4:32:16

Wenkai (China) 4:32:17

's 4 km Team Pursuit

rea 4:22.901 AR

zakhstan 4:23.885

an 4:25.698

ina 4:28.657

inese Taipei 4:31.052

. Iran 4:37.700

's 100 km Team Trial

zakhstan 2:08:09

ina 2:11:00

rgyzstan 2:12:28

en's Sprint

ng Yan (China)

ang Yubin (China)

Jinhua (China)

ng Hsiu Chen (Chinese Taipei)

ka Kuroki (Japan)

miko Suzuki (Japan)

Records

Yan (China); women's sprint

lifying heats: 11.725 seconds GR

en's 3 km Individual Pursuit

ng Qingzhi (China) 3:46.752 AR

2. Ma Hui Zhen (China) 3:51.560

3. Seiko Hashimoto (Japan) 3:54.469

4. Alla Vassilenko (Kazakhstan) 4:01.507

5. Han Myung-Hee (Korea) 4:08.449

6. Chen Chiung Yi (Chinese Taipei) 4:11.360

Women's 56.48 km Individual Road Race

1. Guo Xinghong (China) 1:57:10

2. Zhao Haijuan (China) 1:57:10

3. Wang Shuqing (China) 1:57:10

4. Mika Ogishima (Japan) 1:57:12

5. Song Chung-Mi (Korea) 1:57:12

6. Tomoko Sekiya (Japan) 1:57:12

Equestrian

Open Team Dressage

1. Japan 2,886 points

2. Korea 2,759

3. Chinese Taipei 2,501

4. India 2,424

5. Thailand 2,364

6. Indonesia 2,341

Open Individual Dressage

1. Mieko Yagi (Japan) Oh Ho (horse) 1,021 points

2. Y. Serimachi (Japan) Rosical Song 993

3. C. Shin (Korea) Mighty 986

4. M. Shimoda (Japan) Partout 981

5. J. Suh (Korea) Calm 964

6. M. Choi (Korea) Kei Hou 927

Open Team Jumping

1. Japan 12.00points

2. Chinese Taipei 28.50

3. I.R. Iran 30.00

4. Saudi Arabia 35.25

5. Kuwait 36.00

5. Phillippines 36.00

Open Individual Jumping

1. Konoshin Kuwahara (Japan)
Oh Sen (horse) 0.00points

2. Ryuzo Okuno (Japan) Oh Shu 0.00

3. Natya Chantrasm (Thailand) 3.00

Rock Fall

4. Naoki Otani (Japan) Oh Kan 4.00

4. Khaled Abdulaziz Aleid (Saudi 4.00

Arabia) Winner

4. Chou Min Kun (Chinese Taipei) 4.00

Wicket

4. Huang Han Wen (Chinese Taipei) 4.00

Petrole Du Val

Fencing

Men's Team Foil

1. Korea

2. China

3. Japan

4. Kazakhstan

5. Hong Kong

6. Philippines

Men's Individual Foil

1. Dong Zhaozhi (China)
2. Yoshihide Nagano (Japan)
3. You Bong-Hyung (Korea)
4. Abdul Muhsen Ali (Kuwait)
5. Viancheslay Grigoriev (Kazakhstan)
6. Ye Chong (China)

Men's Team Epee

1. Kazakhstan
2. China
3. Korea
4. Japan
5. Kuwait
6. Kyrgyzstan

Men's Individual Epee

1. Xu Xuening (China)
2. Alexsei Pistsov Alexsei (Kazakhstan)
3. Serguei Chabaline (Kazakhstan)
4. Lee Sang-Yup (Korea)
5. Lee Sang-Ki (Korea)
6. Mohammad Alajmi (Kuwait)

Men's Team Sabre

1. China
2. Korea
3. Japan
4. Chinese Taipei
5. Kuwait
6. Saudi Arabia

Men's Individual Sabre

1. Kim Sang-Wook (Korea)
2. Lee Hyo-Kun (Korea)
3. Katsumi Yamaguchi (Japan)
4. Sossine Vadim (Uzbekistan)

Women's Team Foil

1. China
2. Japan
3. Korea
4. Uzbekistan

Women's Individual Foil

1. Xiao Aihua (China)
2. Chang Mi-Kyung (Korea)
3. Lee, Jeong-Sook (Korea)
4. Liang Jun (China)
5. Wang Huifeng (China)
6. Chun Mi-Kyung (Korea)

Football**Women's Final Standings**

1. China
2. Japan
3. Chinese Taipei
4. Korea

Men's Final Standings

1. Uzbekistan
2. China
3. Kuwait
4. Korea

Golf**Women's Individual Final Round**

1. Huang Yu Chen (Chinese Taipei) 71-69-74-72
2. Kang Soo-Yun (Korea) 73-76-75-71
3. Song Chae-Eun (Korea) 74-73-74-75
4. Chang China Sha (Chinese Taipei) 72-75-76-74
5. Han Hee-Won (Korea) 78-74-74-75
6. Huang Lixia (China) 73-80-75-75

Womens Team Final Standings

1. Chinese Taipei 583
2. Korea 588
3. China 608
4. Japan 611
5. Malaysia 612
6. Philippines 631

Mens Individual Final Round

1. Kaname Yokoo (Japan) 70-69-68-69
2. Zhang Lianwei (China) 72-74-70-69
3. Hong Chia Yuh (Chinese Taipei) 74-70-71-71
4. Ahn Joo-Hwan (Korea) 72-71-76-69
5. Lai Ying Juh (Chinese Taipei) 73-73-71-71
6. Hu Suk-Ho (Korea) 75-73-72-70
7. Chang Tse Peng (Chinese Taipei) 71-71-77-73
8. Kim Chang-Min (Korea) 73-73-76-71
9. Mardan Mamat (Singapore) 72-72-77-73
9. Jyoti Randhawa (India) 77-74-73-70
9. Kiyotaka Oie (Japan) 71-77-73-73
12. Amit Luthra (India) 73-72-76-74
13. Harmeet Kahlon (India) 71-73-75-77

Men's Team Final Standings

1. Japan 86
2. Chinese Taipei 86
3. Korea 87
4. India 88
5. Indonesia 89
6. Singapore 90

Gymnastics**Men's Team Competition**

1. China 286.975
2. Korea 283.575
3. Japan 281.550
4. Kazakhstan 276.425
5. Thailand 254.550

Men's All-around Individual

1. Li Xiaoshuang (China) 57.650
2. Huang Liping (China) 57.000
3. Yoshiaki Hatakeda (Japan) 56.925
4. Hikaru Tanaka (Japan) 56.700
5. Toshiharu Sato (Japan) 56.575
6. Li Jing (China) 56.550

Men's Floor Exercises

1. Li Xiaoshung (China) 9.725

Yegor Fedortchenko (Kazakhstan)	9.600
Toshiharu Sato (Japan)	9.425
Yeo Hong-Chul (Korea)	9.387
Li Xiaoshuang (China)	9.375
Hikaru Tanaka (Japan)	9.275
Men's Pommel Horse	
Toshiaki Hatakeda (Japan)	9.750points
Huang Huadong (China)	9.750
Lee Jang-Hyung (Korea)	9.750
Victor Makeev (Kazakhstan)	9.575
Yu Chi Chan (Chinese Taipei)	9.487
Toshiharu Sato (Japan)	9.450

Men's Rings	
Fan Hongbin (China)	9.750points
Yoo Ok-Ryul (Korea)	9.737
Li Xiaoshuang (China)	9.737
Yeo Hong-Chul (Korea)	9.637
Sornthep Valsang (Thailand)	9.612
Valeri Lioukine (Kazakhstan)	9.537

Men's Vault	
Yeo Hong-Chul (Korea)	9.643points
Li Xiaoshuang (China)	9.562
Li Xiaoshuang (China)	9.549
Lee Joo-Hyung (Korea)	9.549
Yegor Fedortchenko (Kazakhstan)	9.493
Toshiharu Sato (Japan)	9.362

Men's Parallel Bars	
Huang Liping (China)	9.787points
Yung Jin-Soo (Korea)	9.725
Li Xiaoshung (China)	9.700
Toshiaki Hatakeda (Japan)	9.612
Yu Chin Chan (Chinese Taipei)	9.562
Fan Yoon-Soo (Korea)	9.550

Men's Horizontal Bar	
Li Jing (China)	9.812points
Huang Liping (China)	9.775
Yegor Fedortchenko (Kazakhstan)	9.675
Hikaru Tanaka (Japan)	9.612
Toshiharu Sato (Japan)	9.550
Lee Joo-Hyung (Korea)	8.875

Men's Team Competition	
China	194.375points
Japan	189.050
Korea	184.400
Kazakhstan	182.375

Men's All-around Individual	
Rhythmic Gymnastics	
Qiao Ya (China)	38.750points
Huan Xexia (China)	38.700
Mo Huilan (China)	38.687
Oksana Chusovitina (Uzbekistan)	38.675
Risa Sugawara (Japan)	38.387
Mari Kosuge (Japan)	38.375

Men's Apparatus Floor Exercises	
Mo Huilan (China)	9.925points



P.T.Usha, Dhanalakshmi, Shiny Wilson and K. Saramma: Relay Silver

2. Ye Linlin (China)	9.812
3. Irina Evdokimova (Kazakhstan)	9.762
4. Mari Kosuge (Japan)	9.737
5. Risa Sugawara (Japan)	9.712
6. Han Na-Jung (Korea)	9.487

Women's Vault	
1. Mo Huilan (China)	9.756points
2. Ye Linlin (China)	9.693
3. Oksana Chusovitina (Uzbekistan)	9.631
4. Risa Sugawara (Japan)	9.493
5. Anna Zaitseva (Kazakhstan)	9.468
6. Hanako Miura (Japan)	9.443

Women's Uneven Bars	
1. Mo Huilan (China)	9.900points
2. Liu Xuan (China)	9.862
3. Oksana Chusovitina (Uzbekistan)	9.625
4. Risa Sugawara (Japan)	9.600
5. Mari Kosuge (Japan)	9.587
6. Han Na-Jung (Korea)	9.325

Women's Beam	
1. Mo Huilan (China)	9.875points
2. Qiao Ya (China)	9.850
3. Irina Evdokimova (Kazakhstan)	9.525
4. Oksana Chusovitina (Uzbekistan)	9.462
5. Tatyana Toropova (Kyrgyzstan)	9.387
6. Aya Sekine (Japan)	9.200

Rhythmic Gymnastics Individual

Multiple Competition	
1. Yukari Mawamoto (Japan)	37.350points
2. Zhou Xiaojing (China)	37.200
3. Miho Yamada (Japan)	36.950
4. Wang Xiuyun (China)	36.900
5. Kim Yoo-Kyung (Korea)	35.800
6. Kwong Bo-Young (Korea)	35.600

Handball

Men's final standings

	P	W	D	L	GF	GA	Pts.
Korea	4	3	1	0	106	72	7
Japan	4	2	0	2	81	80	4

China	4	2	0	2	78	90	4
Kuwait	4	1	1	2	82	85	3
Saudi Arabia	4	1	0	3	76	96	2

Women's final standings

	P	W	D	L	GF	GA	Pts.
Korea	3	3	0	0	116	66	6
Japan	3	2	0	1	73	84	4
China	3	1	0	2	77	86	2
Kazakhstan	3	0	0	3	67	97	0

Hockey**Women's final standings**

	P	W	L	D	Pts.	GF	GA
Korea	5	5	0	0	10	20	2
Japan	5	3	1	1	7	11	5
China	5	2	2	1	5	10	3
India	5	1	2	2	4	9	6
Uzbekistan	5	1	2	2	4	7	6
Singapore	5	0	5	0	0	1	36

Men's final standings

1. Korea
2. India
3. Pakistan
4. Japan
5. Malaysia
6. Kazakhstan
7. Bangladesh
8. China
9. Oman

Judo**Men****60 kg**

1. Kim Hyk (Korea)
2. Ryuji Sonoda (Japan)
3. Serik Adyganov (Kazakhstan)
3. Hassan Ahadpour (I.R. Iran)
5. Jarkynbek Shambetov (Kyrgyzstan)
5. Dorjpalam Narmandah (Mongolia)

65 kg

1. Yukimasa Nakamura (Japan)
2. Ivan Karaselidi (Kazakhstan)
3. Hao Yi (China)
3. Dashgombo Battulga (Mongolia)
5. Bae Sang-II (Korea)
5. Sandeep Byala (India)

71 kg.

1. Chung Hoon (Korea)
2. Shigeru Toyama (Japan)
3. Haliun Boldbaatar (Mongolia)
3. Ismail Vechagourov (Kazakhstan)
5. Alisher Bokiev (Tajikistan)
5. Annakurban Annaorazov (Turkmenistan)

78 kg

1. Yoon Dong-Sik (Korea)
2. Hidenori Horikoshi (Japan)

3. Vladimir Shamakov (Uzbekistan)
3. Lo Yu Wei (Chinese Taipei)
5. Amanbai Kizdarbaev (Kazakhstan)
5. Jigemude (China)

86 kg

1. Yoshio Nakamura (Japan)
2. Sergei Alimjanov (Kazakhstan)
3. Kim Suk-Kyu (Korea)
3. Khairoulllo Nazriev (Tajikistan)
5. Kamal Muradov (Uzbekistan)
5. Khosrow Delir (I.R. Iran)

95 kg

1. Shigeru Okaizumi (Japan)
2. Kim Jae-Sik (Korea)
3. Dmitri Soloviev (Uzbekistan)
3. Serguei Chakimov (Kazakhstan)
5. Saidakhtam Rakhimov (Tajikistan)
5. Davaasambu Dorjbat (Mongolia)

Over 95 kg

1. Jun Konno (Japan)
2. Seyed Mahmoud Miran (I.R. Iran)
3. Wang Ruisheng (China)
3. Badmaanyambu Bat-Erdene (Mongolia)
5. Abdouljalil Younoussou (Kyrgyzstan)
5. Igor Pechkov (Kazakhstan)

Open class

1. Katsuyuki Masuchi (Japan)
2. Lee Joon-Young (Korea)
3. Wang Ruisheng (China)
3. Badmaanyambu bat-Erdene (Mongolia)

Women**48 kg**

1. Ryoko Tamura (Japan)
2. Li Aiyue (China)
3. Huang Yu Hsin (Chinese Taipei)
3. Kim So-La (Korea)
5. Phuong Trinh Cao Ngoc (Vietnam)
5. Natalia Kouliguma (Kyrgyzstan)

52 kg

1. Hyun Sook-Hee (Korea)
2. Atsuko Takeda (Japan)
3. Wang Jin (China)
3. Tseng Hsiao Fen (Chinese Taipei)
5. Inna Tsoy (Kyrgyzstan)
5. Sunith Thakur (India)

56 kg

1. Jung Sun-Yong (Korea)
2. Noriko Sugawara (Japan)
3. Poonam Chopra (India)
3. Liu Chuang (China)
5. Tu Chun Chou (Chinese Taipei)
5. Prateep Pinitwong (Thailand)

61 kg

1. Jung Sung-Sook (Korea)
2. Yuko Emoto (Japan)
3. Ching Hu Wu (Hong Kong)
3. Zhang Di (China)
5. Oksana Kokorina (Turkmenistan)



en Xiaomin of China: gold

Olga Artamonova (Kyrgyzstan)

kg

Aiko Oishi (Japan)

Cho Min-Sun (Korea)

Yadejda Zeltakova (Turkmenistan)

Yu Mei Ling (Chinese Taipei)

Siok Bin Tan (Singapore)

Yu Kun (China)

kg

Kim Mi-Jung (Korea)

Yeng Chunhui (China)

Chen Chiu Ping (Chinese Taipei)

Muriko Fukuba (Japan)

5. Sambuu Dashdulam (Mongolia)

Over 72 kg

1. Zhang Ying (China)

2. Yeh Wen Hua (Chinese Taipei)

3. Shon Hyun-Me (Korea)

3. Kaori Suzuki (Japan)

5. Supatra Chitpaisansophon (Thailand)

5. Batmunh Bolortsatsral (Mongolia)

Open class

1. Noriko Anno (Japan)

2. Qiao Yanmin (China)

3. Moon Ji-Yoon (Korea)

3. Sambuu Dashdulam (Mongolia)

5. Paradowdee Pestonyee (Thailand)

Kabaddi

Final Standings

	W	L	D	PF	PA	Pts.
India	4	0	0	227	78	8
Bangladesh	3	1	0	100	91	6
Pakistan	2	2	0	153	90	4
Japan	1	3	0	90	159	2
Nepal	0	4	0	78	230	0

Legend: WR-world record; AR-Asian record; GR-Games record; EWR-equals world record; EAR-equals Asian record; EGR-equals Games record; FWR-final world record; FAR-final Asian record; FGR-final Games record.



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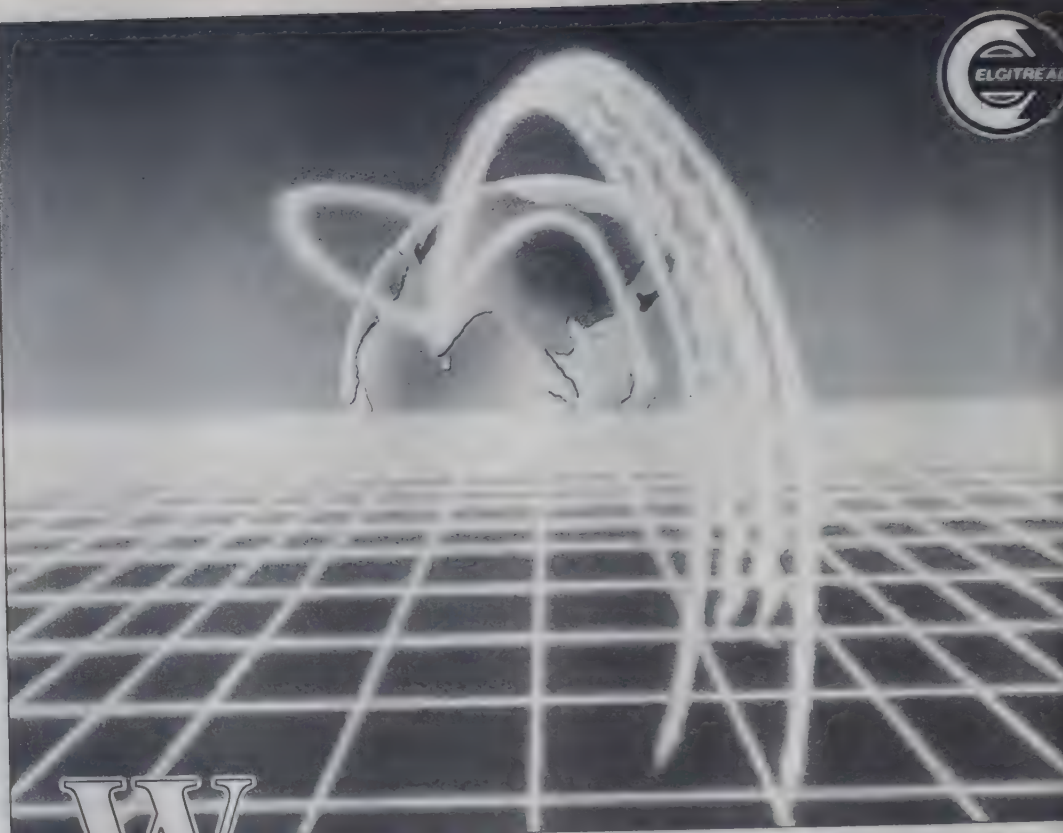
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India: Major events

Looking
Back

January, 1995 1. 8th World Tamil Conference begins in Madurai; N.D. Tiwari steps down as president of UP Congress committee; N.T. Rama Rao launches Rs. 2 per kg at fair price shop at Addagutta (one of Asia's largest slums); Air India starts direct flight to Singapore.

2. Polls in Gujarat and Arunachal Pradesh changed from Feb to March 11.

3. Bihar election put off to March 5, 6, & 9; PM inaugurates 82nd Indian Science Congress at Jadavpur University, Calcutta.

4. IAF batch (Angel of Mercy) returns from Somalia after 16 months of stay and 700 sorties; Jharkhand polls re-scheduled for March 7 and 9.

5. Jitendra Prasad succeeds N.D. Tiwari as PCC-I chief; India receives the first consignment of Chinese Low Enriched Uranium (LEU) for the 2 US built Tarapur nuclear plant with the approval of IAEA; PM gives the valedictory address at the 8th World Tamil Conference at Madurai; The 31st session of the Indian Labour Conference highlights the need to evolve strategies to fight for more employment opportunities, eliminate child labour and suggests Government to enact a comprehensive Industrial Relations Law.

6. Madhu Limaye, veteran Socialist leader, freedom fighter, close associate of Ram Manohar Lohia and Jaya Prakash Narayan dies.

7. CEC T.N. Seshan asks Centre to put off annual budget in lieu of State assembly elections; Manipur Assembly removes Dr. H. Probabu (Speaker) and suspends his membership from the House until state election in February.

8. 26th International Film Festival of India opens at Brabourne Stadium, Bombay.

9. Kumari Anandan replaces Vazhapadi K. Ramamurthy as TNCC (I) chief; Meghalaya fixes Rs. 306.52 crore as outlay for 1995-96 which is 18% higher than Rs. 281 crores for '94-95. Sam fixes annual plan for 1995-96, Rs 1,418 crores; and West Bengal targets annual plan outlay of Rs. 2,065 crores for the same period.

10. India and US sign defence pact; Kerala's birth rate drops to 17.5 per 1000.

11. The 14th Indian Scientific Expedition to Antarctica consisting of 63 members under the leadership of Dr. S.D. Sharma (Scientist, NPL), reaches Antarctica.

12. The 5th Pay Commission suggests trimming of bureaucracy; Ban on VHP reimposed; India and Kuwait agree to set up refinery project in Orissa.

13. India and USA form new trade framework called Indo-US Commercial Alliance and signs contracts worth \$ 1.4 billion.

14. The 4-nation non-official initiative on Arms Reduction and Disarmament concludes with Goa Declaration (also called Shanghai-II); Deve Gowda reassures Mr. Ronald Brown, US Commerce Secretary, on economic reforms and guarantees investment security (multinationals' properties).

15. Goa Cong (I) government led by Pratap Singh Rane attains absolute majority when 4 members of MGP merged with Congress; Eminent Sociologist, Prof. Armaity Desai, appointed the new UGC Chairperson; PM while inaugurating the 5-day conclave of Labour Ministers of NAM and Developing Countries at Vigyan Bhavan, Delhi deprecates move to link international trade and labour standards, decries it as a step against the interests of working class.

16. Tamil Nadu fixes plan outlay for '94-95 at Rs. 3,200 crores representing an increase of 16.36% over '93-94; Supreme Court orders closure of 84 industries in and around Taj Mahal in UP due to pollution.

17. Congress (I) suspends Arjun Singh, from the party.

18. India and South Africa sign three pacts to forge special ties; Iran and India decide to lay down \$3 billion gas pipeline in 5 years; 3,400 meter long tunnel at Barcem piercing through the Karmali Ghat in Canacona taluka on the Konkan railway route in Goa completed at an approximate cost of Rs. 5 crores.

19. Dr. Nelson Mandela attends India's 46th Republic Day celebration as national guest.

20. J&K Governor K.V. Krishna Rao gets another term; Rajiv Gandhi Container Terminal open at Kochi port; Justice M.M. Pareed Pillai sworn in as the new Chief Justice of Kerala High Court.

21. ISRO and Intelsat sign a \$100 million 10-year-long agreement for leasing some of the capacity of the Indian-built INSAT-ZE (scheduled for launch in 1997).

February 1. Karnataka fix annual plan outlay at Rs. 3,575 crore for 1995-96.

2. The Transplantation of Human Organs Act, notified after 7 months of Presidential assent becomes enforceable.

3. Six jawans killed by militants in J&K near Chapral village; India and France decide to set

up permanent Secretariat in Paris during the Indo-French Joint Business Council in Delhi.

7. Cong-I Disciplinary Action Committee expels Arjun Singh from the primary membership for 6 years for anti-party activities.

8. Mulayam Singh wins the crucial vote of strength; Violence erupts again in Thoubal and Churachandpur districts of Manipur.

10. PM appoints Madhavrao Scindia-Human Resource Minister, Pranab Mukherjee-External Minister, Buta Singh-Civil Supplies, Ajit Singh-Food, and P. Chidambaram as Commerce Minister.

12. Maramon Centenary Convention, (the biggest Christian gathering in Asia) begins; The three-phase-budget session begins with the address of Dr. Shankar Dayal Sharma in the joint sitting of Lok Sabha and Rajya Sabha.

15. First phase of the Manipur election begins.

19. Manipur's second and final round polling registers 90% turnout in 39 constituencies where 6 die and 16 others injured in poll related clashes.

20. First round polling in Gujarat begins-records 65% turnout and election related violence kills 2 and injuring 22.

21. The plan outlay for Andhra Pradesh for 1995-96 fixed at Rs. 3,159 crores.

24. A full Bench comprising Chief Justice M.M. Pareed Pillai, TV Ramakrishna and P. Shanmugam of the Kerala High Court quashed the words "incestuous adultery", "adultery coupled with cruelty" and "adultery coupled with desertion" contained in Section 10 of Indian (Christian) Divorce Act

25. Rishang Keishing (Cong-I) swears in as the 15th Chief Minister of Manipur; 25 jawans die in an explosion in Brahmaputra Mail, near Nilaloni station about 200 km from Guwahati.

March 1. Bihar Assembly election postponed to March 11, 15 and 19 by CEC on ground of logistic reasons particularly the reinforcement and augmentation of Central Para Military forces to ensure free and fair election.

4. Kakrapar second unit located near Surat synchronised to the western grid after mandatory tests.

5. India and China agree to open two new border points including Nathu La (Sikkim) to facilitate meetings between their military personnel; The Inter-State Tungabhadra Project Board asks Karnataka to release 1.6 tmc. ft. of water to AP to irrigate rainfed lands.

6. Six killed in clashes in violence during Andhra Pradesh panchayat election; First phase of Orissa Assembly election begins.

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Prof. JAGATHA LAKSHMANAN
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Looking Back

9. Rebel Congress-I leader Arjun Singh along N.D.Tiwari holds big rally at Bhopal.

10. ONGC's oil rig blow out (January 8) at Pasalapudi site near Amalapuram (Andhra Pradesh) put out after 62 days .

14. Railway Budget presented -7% hike in rail freight and 10% in upper class fares; New Chief Minister elect: Keshubai Patel (Gujarat), J.B. Patnaik (Orissa) and Manohar Joshi (Maharashtra).

16. K. Karunakaran resigns as Chief Minister; Finance Minister presents Central Budget.

17. Congress-I in Arunachal Pradesh wins two-third majority.

20. N.D.Tiwari quits all party posts including membership of CWC.

21. A.K. Antony elected Chief Minister of Kerala; Lok Sabha passes Patent Bill by amending the Patent (Amendment) Act 1970.

28. Hillary Clinton calls on Shankar Dayal Sharma at Rashtrapathi Bhavan.

April 1. Open General Licence (OGL) list expanded from 43 to 75 as import of consumer goods have been liberalised.

10. Morarji Ranchhodji Desai (99) passes away at Jaslok Hospital, Bombay.

13. CPI(M) expels former Chief Minister of Tripura for gross indiscipline from.

19. Rajendra Kumari Bajpai appointed the Lieutenant Governor of Pondichery; Goa Governor Gopala Ramanujam takes up additional charge of Kerala.

21. Medium range Akash, surface-to-air-missile flight trial successful.

24. K. Karunakaran, elected to Rajya Sabha.

26. Indian Newspaper Society (INS) calls off stir plans following Government conceding a major demand of the newspaper industry - by putting newsprint on the Open General Licence (OGL) and abolish the condition requiring newspapers to buy 2 tonnes of indigenous newsprint in order to import 1 tonne; National Front revived and announces 3-point plan to fight 1996 general election; SAARC decides to launch South Asia Preferential Trade Area (SAPTA) on December 8, 1995.

May 1. SAARC endorses South Asia Free Trade Area (SAFTA) and establishes a South Asian Development Fund (SADF) for the economic and technical development of the sub-continent.

9. Militants set Charar township on fire - 1000

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houses in the vicinity of the Charar-e-Sherif shrine; Two new gas and oil reserve found off the Gujarat and Bombay coast.

4. The fourth ASLV-D4 blasts off from Sriharikota, successfully placing the SROSS-C2 satellite in orbit; More tax reliefs for SSIs announced; VSNL defers mega Euro-issue of global depository receipts equivalent to 20 million equity shares following difficulties in securing the targeted price.

5. Revolt against Nar Bahadur Bhandari government in Sikkim, Sanchaman Limboo elected new leader. 6. V.P. Singh opposes the entry of AIMDK into National Front.

7. Textile magnate Sunit Khatau, 55, shot dead; Drupad Maestro Ustad Nasin Zahiruddin Dagar, 62, dies at Bareilly.

11. Militants burn down Charar-e-Sherif shrine (the tomb of Sufi saint Sheikh Noorudin Noorani) built in 1460 by Zain-ul-Abidin in central Kashmir; Stock brokers' Indemnity Insurance Scheme launched which covers the brokers for the legal liability arising out of a breach of the stock exchange rules.

12. Supreme court stays Tamil Nadu Governor's orders allowing Dr. Subramaniam Swamy to prosecute the Chief Minister Dr. Jayalalitha, under Prevention of Corruption Act; India refuses to sign NPT in its present discriminatory form.

13. Renowned environmentalist Maurice F. Strong chosen for the Jawaharlal Nehru International Understanding awarded for 1992; Telecom sector opens to private companies under the new national policy announced in Parliament. India blocks Palk Strait to curb LTTE movement.

14. LTTE banned for the second time under the Unlawful Activities (Prevention) Act, 1967; RBI announces tight monetary policy; Major train accident near Salem when Madras-KK Express collides with goods train killing 51 people.

15. Prime Minister Rao arrives in New York for a week-long visit. 16. Government of India decides not to extend the validity of TADA Act; Prime Minister assures continuation of Indian Missile programme. 17. Three North Eastern States do away with restricted area permits (RAP). Foreign Minister declares that India will not make nuclear arms. 18. Criminal Law (Amendment) Bill, 1995, introduced in Parliament to replace the 10 year old controversial TADA Act; Tripura's first Chief Minister Sukhomoy Sengupta, 76, dies.

19. N.D. Tiwari expelled from the primary membership of Cong-I for 6 years for anti-party activities; N.D. Tiwari elected rebel leader and revokes Arjun Singh's suspension.

23. TADA expires; New anti-terrorists activities law proposed; Criminal Law Amendment Bill, 1995, voting put off; Lok Sabha passes

Finance Bill 1995.

25. Voting on the Criminal Law Bill differed again in Rajya Sabha; Parliament gives assent to Budget and passes Finance Appropriation Bill.

27. The launch of National Centre for Labour in Bangalore gives boost to the unorganised worker's movement in India.

29. Government refers the Patents Bill to Rajya Sabha.

30. India takes firm stand with regard opening up of the financial sector; provisions were given by industrialised nations and access to professionals to their markets.

31. Statute Bill, a constitutional amendment bill, introduced in Lok Sabha to extend reservation in jobs and in promotion for Scheduled Castes and Scheduled Tribes.

June 1. Kanshi Ram (Bahujan Samaj Party) withdraws support to the Mulayam Singh Yadav led government in Uttar Pradesh and states claim to form new government.

2. Parliament approves the 86th Amendment Bill which provides for continuation of reservation in promotion in Government services SCs and STs.

3. Mayavati (BSP) becomes the new minister of UP with the outside support of President's rule in J&K extended for another months.

5. Manmohan Singh reelected to Rajya Sabha from Assam; Three-week long Indo-US army training exercise begins for the first time.

9. Natwar Singh, who was suspended for party activity in 1993 returns to Cong-I. Ikhul-Muslimeen abducts and later releases A Gani Lone, Chairman of the pro-Plebiscite People's Conference and leader of All India Kashmir Huriyat Conference.

11. New Cabinet Ministers inducted: Karunakaran (Industry), AR Anthulay (Health, Family Welfare) and Dr. Jagannath Mishra (Agriculture, Areas and Employment); New Governor appointed - MM Jacob (Meghalaya), Naresh Chandra (Gujarat), Mahabir Prasad (Haryana), Siddheswar Prasad (Tripura); PM leaves for day official visit to France.

13. India and France sign bilateral investment protection pact; Commission on Labour Standards and International Trade recommends formulation of New National Policy on Labour and creation of Child Labour Fund.

14. RBI announces the introduction of ombudsmen to redress grievances and disputes of bank customers.

Looking Back

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15. BJP in Gujarat civic polls bag 344 out of 7 seats.

17. Up Governor Motilal Vohra sets agenda for two-day special session of the UP Assembly by asking Speaker to take up motion against self.

18. POWERGRID partially cuts off supply to Madhya Pradesh to penalise APSEB for persistently drawing excess power from the central grid.

19. In an unprecedented move, Speaker Dhani Ram Verma adjourns the two-day special session called to prove Mayavati Government's majority in the House. Later, the House gathers, rejects the sine die adjournment and unanimously elects B.R. Verma (BSP) as new presiding officer to conduct the business of the House; India and US officially launch Indo-US Commercial Alliance during US Trade Secretary's visit.

20. Mayavati Government wins vote of confidence; B.R. Verma made *protem* Speaker by Governor by invoking Article 180 (1); The Unlawful Activities (Prevention) Tribunal strikes down the ban imposed on VHP by cancelling the Central Government's January 14, 1995, notification outlawing the organisation.

21. India and International Committee of the Red Cross (ICRC) sign MOU which enables them to visit suspected militants and persons in detention centres only under humanitarian consideration.

22. Telecom union calls off 5-day old nation-wide strike.

23. Madhya Pradesh declared "Tiger State" as it has become one sixth of the world's tiger population.

24. Environmentalist and 'Chipko' leader, Sunderlal Bahuguna ends the 49-day old fast in demand for a scientific review of the controversial Tehri dam project in UP.

25. CNN launches a 24-hour news channel in partnership with Doordarshan.

26. Central team as a part of Government's initiative to start political process visits Doda in Jammu.

27. Rajan Pillai, convicted by a Singapore court for multi-million dollar fraud arrested in New Delhi.

28. Tarapur nuclear station controls the leak of radioisotopes and soil contamination within the natural background radiation levels.

29. Five foreign tourists abducted by militants in Kashmir 10 km uphill from Pahalgam when they were trekking.

30. Rajan Pillai, 47, dies allegedly because of lack of timely medical attention by Bihar jail authorities and also within 24 hours of rejection of his plea for medical treatment at Escorts Hospital by the court.

31. 17 member Indian mountaineers peaked Jogambha in the Garhwal Himalayas.

Looking Back

24. The ground firing of the liquid engine for use in the strap-on stage of the GSLV tested successfully; Government of India rules out release of militants in exchange for foreign hostages held by Al-Faran in Kashmir.

25. India reaps a record harvest of food grain of 189.77 million tonnes ('94-95).

26. One person killed and 30 injured in a powerful bomb explosion in Jammu.

27. Eleven Cong-I and National Conference activists gunned down in J&K after abducted from their homes.

30. Notification issued for the constitution of Jharkhand Autonomous District Council.

31. Manipur Chief Minister Rishang Keshing wins the vote of confidence; Central Government approves the Kayamkulam Thermal power project in Kerala.

August 1. Vohra Panel submits report, highlights nexus between mafia and politicians.

3. Enron Power Project scrapped by Maharashtra government.

9. Jharkhand Autonomous Council starts working with Shibu Soren as its Chairman; India celebrates 53rd anniversary of Quit India movement.

15. 43 hard-core LTTE militants, including 4 women escape the Vellore high security jail; PV Narasimha Rao introduces mid-day meal scheme for the primary school children under the first ever Central Government Welfare Programme.

18. Parvati Giri, 69, also called Little Mother Teresa dies in Orissa-known for taking part in Quit India and social work.

20. 208 killed and 230 injured in a train accident in Ferozabad (UP) when Kalindi Express and Purushotam Express collided; India and China decide to withdraw 4 battalions of Army from Chu Sumdorong valley near the Line of Actual Control; Indira Mahila Vikas Yojana launched.

23. PM visits Ferozabad train accident site and urges to adopt modern technology to prevent such major accidents; First ever Cellular Phone service begins in Calcutta.

24. Enquiry into the Ferozabad train mishap begins.

26. Toll in Ferozabad train accident rises to 305 dead and 345 injured.

27. Andhra Pradesh Governor asks NT Rama Rao to prove his majority on 31st following a split in the Telugu Desam party.

29. August 29th declared National Sports Day.



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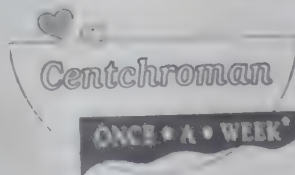
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31. Punjab Chief Minister Beant Singh and 14 others killed in a suicide car bomb explosion in Chandigarh.

September 1. Chandrababu Naidu assumes office as the new Chief Minister of Andhra Pradesh.

3. Ram Jethmalani (lawyer and MP) launches a new party, Bharatiya Lok Panchayat to rid the country of its evils.

4. 2 bomb explosions in Srinagar kills 12 people and injures 25.

5. 30 member Ladakh Autonomous Hill Council sworn in, conceded by Government of India in October 1993; Heavy flood in the north Indian States of HP, Haryana and UP devastates life, kills 80 people.

6. New broad gauge Palace on Wheel to ply between UP and Rajasthan dedicated to the nation.

7. Chandrababu Naidu, Andhra Pradesh Chief Minister wins the vote of confidence with 227 voting in favour and 31 neutral; BBC stringer and the special correspondent of The Asian Age Mohammed Yousef Jameel dies in a parcel bomb explosion in Srinagar.

8. Harcharan Singh Brar sworn in as the Chief Minister of Punjab.

10. Sudhakar Naik, Governor of Himachal Pradesh resigns; 87 of the 180 members of the newly constituted JAAC assume office.

11. Prime Minister Narsimha Rao inaugurates the State Panchayat Minister's meet for discussing panchayat election, devolution of administrative and financial power to the local bodies. 100 people die in a landslide at Loghar Shatti near Kullu.

16. Prime Minister inducts 16 new members into the Council of Ministers and elevates 3 deputy ministers to the rank of Minister of State.

19. PM leaves for 5-day visit to the two Central Asian republics of Turkmenistan and Kyrgyzstan to give impetus to bilateral economic relations and strategic relations in the region.

27. Seventy three people die in a Coal India's mine accident in Dhanbad district, Bihar, when flood water leaked into the mine; Cellular Phone starts operating for the first time in Delhi.

October 7. Keshubhai Patel ministry in Gujarat wins the vote of confidence in the State Assembly following a compromise reached between party leadership and dissidents.

10. The World Bank assures India of IDA soft loans; GR Khairnar, the high profile suspended Deputy Municipal Commissioner of Bombay reinstated.

12. Inderjit Gupta re-elected General Secretary.

13. Communist Party Press Council of India

appoints observers for monitoring the role of media during the Parliamentary election.

15. PM leaves for 12-day tour of Egypt, NAM Summit at Cartagena, Columbia and UN 50th year celebration at New York; Gujarat CM

Keshubhai Patel falls ill and is admitted to the civil hospital in Ahmedabad following severe chest pain; The Gujarat Finance Minister Suresh Mehta emerges as the consensus candidate for the office of the State Chief Minister with both outgoing CM Keshubhai Patel and dissident leader Shankersinh Vahela accepting him for the post.

16. India and Egypt sign 4 agreements; Supreme Court orders bail for Sanjay Dutt, accused in the Bombay blast case on furnishing a bond of Rs. 5 lakhs and two securities to the satisfaction of Bombay TADA Court; National Human Rights Commission asks State Governments to take "speedy and definite" steps for the elimination of bonded labour.

17. Sanjay Dutt let out of the Arthur Road Prison, after 15 months on bail; BJP withdraws support to Mayavati Government in UP; India and Kyrgyzstan agree to set up joint venture in the Petroleum sector; UP Governor Motilal Vohra accepts the resignation of Mayawati and her Cabinet, but asks her to continue till alternative arrangements were made; BJP's top brass takes the final decision to break with the BSP due to the obduracy of former BJP CM of UP Kalyan Singh as well as pressure from the party's rank-and-file, the eventual party stand signifying the victory of the faction led by Kalyan Singh and Dr Murali Manohar Joshi over the group owing allegiance to Atal Behari Vajpayee and Lalji Tandon.

18. President's Rule imposed in UP and the State Assembly put in suspended animation, instead of being dissolved; Punjab CM Harcharan Singh Brar inducts All India Youth Congress President Maninderjit Singh Bittai to the Council of Ministers.

21. Finance Minister in the outgoing Keshubhai Patel ministry, Suresh Mehta swear in as the second BJP CM of Gujarat in Gandhinagar, ending the month-long political turmoil and period of uncertainty in the State following his unanimous election at a meeting of the 121 member BJP Legislature Party presided over by Atal Behari Vajpayee; L.K. Advani unanimously re-elected BJP president for the fourth time in New Delhi.

24. Total eclipse seen over Rajasthan, UP, Bihar and West Bengal while partial eclipse seen in the rest of the country; BJP and Samjawadi

Looking Back

Party stakes claim to form government in UP separately before Governor Motilal Vohra.

26. RBI intervenes by selling several million dollars to recover the rupee's plunge which reached an all time low of Rs. 35.85 for a dollar. India decides to go ahead with Integrated Guided Missile Development Programme in the wake of US stand to supply 370 million dollar arms package to Pakistan.

28. RBI announces revision of maximum interest rate for non banking financial companies.

November 3. Sheila Kaul becomes Governor of Himachal Pradesh, P. Shivshankar of Kerala and V. Raghunath Reddy takes additional charge of Sikkim.

4. 65th Annual Session of the National Academy of Sciences (NASI) begins at SV University at Tirupati. The expert committee of the Maharashtra government starts renegotiation with Enron.

5. PM Narsimha Rao reaches Argentina for G-15 summit at Buenos Aires. 'Common Guidance' flight test of Trishul successfully completed.

7. G-15 summit concludes and the declaration calls for South-South cooperation and reduction of trade barriers, tariffs among the member countries, stability of interest and ex-

change rates. India opens second consulate UK in Glasgow (first being at Birmingham). Election Commission reviews law and order situation in J&K puts Left Parties in a quandary.

10. Election Commission categorically rejects Union Cabinet recommendations to conduct Assembly poll in J&K on grounds that conditions are not conducive for a 'free and fair poll'. State Bank of India takes the much awaited decision to hike prime lending rate one percentage point to 16.5 percent.

11. RBI reduces CRR to be maintained by scheduled commercial banks at 14.5 percent.

13. The Supreme Court in a unanimous 4-page verdict declares that patients who received deficient services from the medical profession and hospitals were entitled to claim damages under the consumer Protection Act, 1986.

14. National Human Rights Commission holds a conference on 'Human Rights in Prisons' beginning in New Delhi.

15. The Chairman of the standing committee of the Chinese National Peoples' Congress, Shi arrives in New Delhi to advance Sino-Indian relations.

16. Mass Rapid Transit System (MRTS), India's first elevated suburban railway begins in Chennai. The Pension scheme ordinance for



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tion Provident Fund subscribers takes effect
an initial corpus of Rs. 8,500 crores.

7. The 18-nation APEC forum at Osaka (JA-
I) agrees to permit non-members to partici-
e in working groups as guests—opens the
nce for aspiring States like India to get a
nbership.

9. Samata Party splits and Syed Shahabuddin
umes charge of the Party as Acting President
place of George Fernandez who was sus-
ded.

10. The DRDO completes the designing of con-
ditional warheads for the Agni (IRBM) missile.

11. WTO Deputy Director General Anwar
la exhorts India to exploit to its advantage
reduction in export subsidies as a result of
guay Round agreements.

24. Farooq Abdula sug-
gests LOC be converted into
International borders to
resolve problems between
India and Pakistan.

25. The 4-States of
Gujarat, Goa, Maharashtra,
and Madhya Pradesh in
order to rationalise the
economic fundamentals and tap synergies aris-
ing out of investment opportunities propose
trade bloc for western States (Western Regional
Cooperation); Namibian Prime Minister Hoge S.
Geingob arrives in New Delhi.

30. Union Minister Dinesh Singh, 70, die after
a prolonged illness; Gurcharan Singh Tohra re-
elected SGPC President.

Looking Back

World: Major Events

January, 1995 1. World Trade Organisation
(O) comes into effect with the backing of 85
nbers who signed Uruguay Rounds; Euro-
n Union expands its membership to 15, the
ones being Austria, Finland, and Sweden.

3. US sets nuclear monitoring facility in Paki-
stan; LTTE and Sri Lankan Government reach an
agreement on a truce for a settlement of the
North-East conflict.

6. Zeid Ben Shaker, a two-time former Prime



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Minister forms new government in Jordan following the resignation of Abdel Salam Majali; Japanese Minister for International Trade and Industry Ryutaro Hashimoto announces a two-year credit line of \$1 billion (over Rs. 3,100 crores) as a part of 7-point Action Plan for strengthen bilateral economic ties.

14. Lamberto Dini named Prime Minister of Italy by President Oscar Luigi Scalfaro; Russians tighten grip on Grozny.

17. Major earthquake measuring 7.2 on the open Richter scale strikes heavily populated Osaka-Kobe region killing over 4,693 people, injuring 25,000 and destroying 50,000 buildings and an estimated loss of \$100 billion.

19. Stone Age painting found at Combe d'Arc France comprise 300 vivid images of animals and human hands made 20,000 years ago.

21. Iraq seeks Indian help to lift UN embargo on the NAM Labour Ministers' Conference.

25. India and South Africa sign 3 pacts to forge special ties; India and Iran decides to lay down \$3 billion gas pipeline in 5 years.

26. Lambert Dini wins vote of confidence; Chinese rocket Long March-III explodes a minute after launch destroying US-built communication satellite; South Africa begins the process of adopting 'Final Constitution'.

31. Security Council approves new UN force, MINUH (mission in Haiti), of 6000 strong.

February 1. 35,000 refugees flee from Sierra Leone into the neighbouring country Guinea following fierce fighting between government and rebels; Moroccan King Hassan II dissolves the Government following a political bout with opposition parties, Abdellatif Filali retained as PM.

6. Forces loyal to Afghan President, Burhanuddin Rabbani give up a strategic provincial capital in the north to Gulbuddin Hekmatyar's Hezb-i-Islami.

22. British PM John Major and his Irish counterpart Mr. John Bruton sign an accord in Belfast to end the conflict in North Ireland; Patriotic Front Qubec independence leader Lucien Bouchard returns to politics breathing new life into a faltering separatist movement, after a brush with death and loss of a leg due to a flesh eating disease.

24. Rehmat Masih and Salamat Masih acquitted of blasphemy charges by the Lahore High Court led to demonstration and violence in Pakistan.

25. Twenty people die in Karachi when gunmen massacred Shiaites worshipers in a mosque.

27. King Hassan of Morocco approves a new government comprising politicians and technocrats as suggested by Prime Minister.

March 1. John Major narrowly survives a crucial vote in House of Commons.

2. Nick Leeson, whose fraud plunged the Barings Bank into bankruptcy, detained at Frankfurt airport.

The World Summit on Social Development, Copenhagen begins, focuses on poverty alleviation, employment generation and social integration; Last of the American marines leave Mogadishu, Somalia.

20. Aum Shinri Kyo nerve gas attack in a Tokyo Subway strikes terror - kills 12 and injures 5000 Japanese.

23. Ex-Italian Minister, Renato Ruggiero named WTO Director General.

April 10. PM David Oddsson scrapes through in the 63 seat Althing.

14. Winne Mandela dismissed from the Parliament.

15. Iraq accepts UN plan for partial sale of oil for humanitarian purposes.

16. A 12 year Christian boy Iqbal Masih, who won international acclaim for highlighting the evils of child labour in Pakistan shot dead calling world-wide protests.

18. 176 member Conference on NPT Review begins.

19. Oklahoma City's Federal building bombed, kills 100 people.

21. Sri Lanka Navy shells LTTE bases at Point Pedro following LTTE violating cease-fire on disagreement with Government's slow progress in Peace talks.

26. Mahathir Bin Mohamad and his ruling party win an overwhelming victory in the 9th Malaysian general election.

27. Israel-Syria resume peace talks in Washington.

May 1. SAARC endorses SAFTA and establishes a South Asia Development Fund (SADF) for economic and technical development of the region; US cuts off trade links with Iran.

5. Russia holds firm on Iranian nuclear deal in spite of rising US pressure.

6. Third African-AfroAmerican Summit at Dakar deliberates on economic issues and attainment of self-sufficiency (African Economic Independence).

8. Jacques Chirac becomes the new French President.

10. Russia drops the military part of the nuclear deal with Iran under US pressure during the Summit at Moscow.

12. The member states of the NPT agree to make it a permanent international arrange-

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Looking Back

ment, India refuses to sign the NPT treaty.

15. Tehran plans a vast Nuclear Build-up of about 10 units in the next two decades.

16. Aum Shinri Kyo's founder Shoko Asahara, the suspected mastermind behind the March 20 nerve gas attack in the Tokyo subway killing 12 people and injuring 5000, arrested.

18. US vetoes UN criticism of Israeli plans to occupy all Arab lands in the eastern Jerusalem even as EU and Arabs express disappointment.

20. PLO calls to halt normalisation of ties with Israel to Arabs.

22. US decides to grant visa to Taiwan President Lee Teng-hui, breaking a 16 year old rule, under heavy pressure from the Republican dominated Congress; Belgians reject right-wing parties and asks King Albert to nominate a PM for forming a new government.

23. Arab-dominated political parties in the Israeli Knesset force Yitzak Rabin to freeze the confiscation of over 100 acres of land in east Jerusalem by threatening to table a no-confidence motion; China strongly protests US decision to allow entry to Taiwanese President to receive award from Cornell University.

24. 108 people die of Ebola virus attack in Zaire; AFC-AJAX wins the European Champion's Cup by defeating AC Milan 1-0 at Olympic stadium in Vienna; Israel and Syria reach a framework of understanding on the Security arrangement; US-N. Korea talk deadlocked following North Korea's refusal to accept light-water reactors from South Korea as a part of the accord signed in Geneva in Oct 1994, aimed at halting North Korea's nuclear programme.

25. US scientists decode DNA (genetic code) for the first time of a living organism.

26. NATO planes bomb Serb ammunition dump to punish the Serbs for the attacks on UN 'Safe Areas', kills 76 people.

28. 2000 die in a severe earthquake in the Neftegorsk town in the Northern Russian island of Sakhalin; Bosnian Serbs take 200 UN Peacekeepers hostage in retaliation of NATO's airstrike.

31. Russian Foreign Minister Andre Kozyrev endorses Russia's full membership in NATO's Partnership for Peace Programme.

June 1. The dispute over the group of islands in the south China Sea- the Spartlys, heats up as China, Philippines, Taiwan, Vietnam, Brunei and Malaysia stake claim on the territory.

3. 126 of the 377 UN Peacekeepers hostages released.

4. LTTE seamine sinks Red Cross ship near Jaffna.

5. International Committee of the Red Cross suspends ferrying of patients requiring medical attention from Jaffna to Colombo following sinking of its ship.

7. Serbs free 108 UN soldiers taken hostage.

9. Nepalese PM Manmohan Adhikari resigns.

13. King Birendra of Nepal dissolves Parliament and calls for fresh election; Brazil lifts Umbro Cup International Challenge Football tournament at Wembley Stadium in London beating England 3-1; French President Jacques Chirac formally announces resumption of nuclear testing ending a 3-year long self imposed moratorium at Pacific.

14. The Chechen rebels storm into Buddenovsk killing and wounding dozens of people before holing up inside a local hospital with about 1000 hostages.

16. UN Security Council approves the addition of a European Rapid Response Force of 12,500 troops to the peacekeeping force in view of escalating war in Bosnia-Herzegovina.

17. G-7 Summit at Halifax establishes a new mechanism to manage Mexico-style crisis by strengthening IMF.

19. The six-day hostage drama in southern Russian town of Budyonovsk ends peacefully when Chechen rebels released most of the hostages.

20. Chechen rebels release the last group of hostages after entering Chechenya who were taken along as shield against any possible Russian trap.

22. John Major stuns the nation by resigning as party chief of faction ridden ruling Conservative party.

27. The Crown Prince of Qatar Sheikh Hamad bin-Khalifa-Al-Thani takes over as Emir of the Sheikhdom, ousting his father Khalifa bin-Hamad-Al-Thani in a bloodless coup; "Atlantis" blasts off into orbit with US-Russian crew of 7 on the first shuttle docking mission with Russia's space mission Mir.

28. Pakistan seeks help of Interpol to arrest MQM leader, Altaf Hussain in exile in London.

30. US pulls out of talks in the Uruguay Round negotiations at Geneva to liberalise trade in the financial services, saying it would be unable to undertake MFN obligations in any of the main areas of financial services, banking, insurance, securities and fund management.

July 4. John Major wins Conservative ballot by defeating John Redwood by 218 to 89 votes.

12. US President declares full restoration of relationship with Vietnam; Sri Lankan troops under Operation Leap Forward captures up to 6 km away from Jaffna.

21. 16-nation London Conference on Bosnia led to 'a new determination to try to ensure that

the Serbs are on full notice that they can not continue with these attacks on the 'safe areas'.

24. Six people die and over 30 injured in the explosion in a bus in a Tel Aviv suburb set off by a suicide bomber; US and NATO resolves to defend all Bosnian 'safe areas' from Bosnian Serb attack even though only Gorazde was named in the 16 nation London Conference warning.

25. Bosnian government forces in the embattled eastern enclave of Zepa have surrendered to surrounding Serb rebels.

26. Taiwan protests against China's testing of missile in the south Pacific by firing in the sea.

27. UN General Secretary Butros Ghali delegates air strike to UN forces on Serb rebels, while Bihach fell into rebels' hands. Bangladesh Supreme Court rules that boycotting opposition MPs be treated as absentees.

28. Vietnam joins ASEAN.

31. Bangladesh Parliament declares the seats of 87 opposition party vacant.

August 1. Hubble Telescope traces yet another moon of Saturn.

5. South Korea launches its first satellite

Koreasat-1, a communication satellite from Cape Canaveral aboard Delta-II rocket.

6. World commemorates the 50th year of Hiroshima bombing by US.

9. Memorial service conducted at Nagasaki to remember nuclear holocaust.

15. A five member army commission seizes control of the twin-islands of Sao Tome and Principe in a bloodless coup after arresting President Miguek Trovoada.

16. China expels 6 Greenpeace activists and two photographers protesting against nuclear test in China and other countries at Tianmen square.

24. Harry Wu, the naturalised American citizen sentenced to 15 years in jail with the option of expulsion on charges of spying illegally obtaining, buying in disguise and providing State secrets to overseas organisations.

28. Nepalese Supreme Court revives 20 member House of Representatives, dissolved on June 13th and annuls mid term elections declared by King Birendra.

29. Edward A. Shevernadze (Georgia) injured in a car bomb explosion; Japan freezes aid to China in protest against Beijing's unclear test. Shells kill 37 innocent pedestrians and 85 injured in Sarajevo in the continuing 40 month

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ian war, touching off world outrage; The Peace Ship, Rainbow Warrior-II to breach 20 km exclusion zone around Mururoa atoll, site of France's underground nuclear test-scheduled for September 1 onwards, in protest; Amnesty International makes its first ever public appearance in China-a long-term target of its human rights campaign.

1. Amnesty International conducts the first protest in China against human rights violation; A car bomb explosion in Algiers kills and injures 15.

September 2. Bangladesh opposition party declare 32 hour general strike to press for early general elections under a neutral caretaker government.

3. 3 persons killed and 50 injured in clashes between Bangladesh's ruling and opposition parties on the second of a 32 hours general strike.

4. Fourth World Women's Conference begins in Beijing with the address of Chinese President Jiang Zemin; 10,000 Government and NGO delegates from 180 countries are participating; 5 people killed in Karachi during hartal in protest against police atrocities against Mohajir women, then violence suddenly erupts; Soyuz rocket rockets into space from Baikonur Cosmodrome,

carrying European Space Agency astronaut, Thomas Reiter of Germany.

5. NATO resumes air bombing of Bosnian Serbs to relieve Sarajevo in seize and removal of heavy artillery; France conducts nuclear test at the Mururoa atoll.

8. Bosnia's warring sides decide to put an end to the three and a half year old war by cutting the nation into two parts: one for the rebel Serbs and the other for the Muslims and Croats made possible after weeks of US shuttle diplomacy.

10. Nepali Prime Minister Manmohan Singh Adhikari's nine-month old Communist Party (Unified Marxist-Leninist) loses a no-confidence motion moved by the Opposition in the Pratinidhi Sabha.

12. M. Sher Bahadur Deuba (49) sworn in as Prime Minister in the 5 member coalition government of Nepal.

13. Sri Lankan AN-32 aircraft crashes into the sea off the western coast, killing 75 persons.

15. 190 countries adopts the Beijing declaration and the platform for Action at the conclusion of the Fourth World Conference

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A child miseducated is a child lost

- John Kennedy

on Women: The Bosnian Serbs agree to draw their heavy guns out of firing range in Sarajevo, ending NATO's two-week long bombing campaign.

18. Sher Bahadur Deuba secures voter confidence in the Lower House of Nepal Parliament.

21. US Senate passes the Brown Amendment watering down Pressler Amendment and opening the way for resuming US economic and military aid to Pakistan.

24. Israel and the PLO agrees to extend Palestinian self-rule in West Bank after 8 days of gruelling talks in Taba, Egypt.

October 2. Bangladesh Government rejects SAPTA.

3. Mother Teresa receives the United Nations Development Fund for women (UNIFEM) Foundation Award.

6. Russia decides to pursue peaceful settlement of Chechnya despite the bomb attack. The Russian military commander in Gush Israel announces release of 1200 Palestinian prisoners in the following week.

7. Earthquake, measuring 7, shakes Solomon Islands killing about 100 people.

9. Aung San Suu Kyi, who was freed after 6 years of house arrest, reinstated general secretary of National League for Democracy.

10. Qatar lifts 10 year old ban on news papers, as apart of liberalisation move; Israel releases 6000 detainees-the first part of the total 10,000 a part of implementation of September 20 Bank autonomy accord.

11. Estonia's seven-month old coalition government collapsed after the Prime Minister Tilt Vachi resigned following a confidential explosion of the Interior Minister accused of making secret recordings of leading politicians conversation.

12. The US brokered 60-days truce takes effect in Bosnia ending 3.5 years of bloodshed and mayhem.

13. UN Convention on Conventional Weapons (CCW), Vienna, ends: sought to prohibit the indiscriminate use of landmines was ratified by 50 countries and International standards for the recording of minefields, mine layers and putting warning signs around, accepted; Qatar lifts 10 year old ban on newspapers, as a part of the liberalisation move; Austria plunges into a surprise election campaign 3 years ahead following resignation Government broke up on the issue of spending cuts.

17. Sri Lankan Army begins "Operation Riviresa" (Sunshine) in the southern part of Jaffna; Kenneth Kaunda (Zambia's President) faces deportation after President

his political foe) Frederic Chiluba's government alleges the former as a non-man. Iraqis give a massive vote of approval to Saddam Hussein in the October 15 presidential referendum confirming him to top post for seven years.

Sri Lankan main oil storage of Ceylon Petroleum Corporation at Kollonnawa and Odawatte blown by LTTE; Cartagena NAM unit ends.

LTTE attacks three villages and kills more than 70 Sinhalese.

Cuban leader Fidel Castro argues vigorously for Asian and Latin American countries representation in Security Council.

Special 50th commemorative session of UN begins in New York; A strong earthquake measuring 6.5 rocks the Yunan province of China, killing 44 people besides destroying buildings.

The Conference Committee of the House of Representatives and the State on Foreign Operation Appropriation Bill is overwhelmingly retaining the Senate version of the Hank Brown amendment permitting the transfer of military equipment three a one-time waiver of Pressler Act.

PM addresses the 50th anniversary session of the UN, calls for total elimination of nuclear weapons; US Congress backs Clinton to shift US embassy to Jerusalem; Jordan ratifies SAPTA.

LTTE massacres 24 Sinhalese in the rural Anuradhapura district.

Italian PM Lamberto Dini's non-elected post-war caretaker government of technocrats with a mandate to promote reforms survives crucial vote of non-confidence.

November 2. Jose Ryoki Inoue, a Japanese-Australian writer has 1,036 novels-enters Guinness Book of World Records.

Typhoon Angela with wind speed reaching at 270 kmph causes havoc across Philippines-damaging buildings, killing many people.

UN, through a non-binding resolution passed in the General Assembly by 117 to 3 with 38 abstentions, for a 4th consecutive year asks US to lift trade embargo on Cuba.

Israeli PM Yitzhak Rabin assassinated; The Turkish PM Tansu Ciller wins a vote of confidence.

Yitzhak Rabin laid to rest in W. Jerusalem; 5th Summit of the G-15 developing countries begins at Buenos Aires, Argentina; Eduard Shevardnadze re-elected President of Georgia,

polling over 70% of the votes; Lech Walesa (52) wins the first round of the Poland's Presidential election.

7. G-15 summit concludes at Buenos Aires, the joint declarations call for South-South cooperation and reduction of trade barriers and tariffs among the member countries and also for stability in interest, exchange rates.

11. Nigeria suspended from Commonwealth for its defiance of international opinion and flouting the principles of the organisation (following the execution of Ken Saro-Wiwa and 8 other minority rights activists.)

13. Commonwealth Summit concludes at Auckland, New Zealand; Commonwealth Heads of Government launch Commonwealth Partnership for Technology Management (PTM) a forum for facilitating national capital building through best cooperative use of technology management.

15. Germany decides to extradite Nick Leeson to Singapore to stand trial for multi-million dollar financial fraud.

17. LTTE downs an airforce cargo plane.

18. Miss Venezuela, Jacqueline Marcano wins 1995 Miss World pageant at Sun City, South Africa.

19. Two blasts in Islamabad: Egyptian embassy destroyed, 17 dies and 50 injured.

20. Sri Lankan forces enter Jaffna city limits after fierce fighting.

21. Sri Lankan Army blocks off access routes of LTTE within Jaffna city limits.

24. Bangladesh Parliament dissolved in the wake of 20-month old agitation by the mainstream opposition parties and boycott of parliament.

25. LTTE rebels fire gas canisters at the advancing Sri Lankan forces.

26. Bosnian Serb leader Radovan Karadzic threatens not to sign the Dayton Peace Accord to end Balkan War if he is arrested to stand trial for war crimes.

28. Canadian PM Cretien offer Quebec significant concessions, including recognition to the French-speaking province as a 'distinct society' puts separatists on spot; Israel play down the first face-to-face encounter with Syria at the Barcelona conference of European and Mediterranean nations saying there had been no basic change in the two sides' position; Hezbollah guerrillas rain a barrage of Katyusha rockets on North Israel, kills 8 people and causes heavy damages in most serious attack in six months.

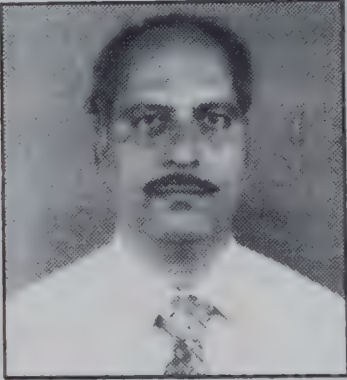
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The SAF Games adopted 'Peace, Prosperity and Progress' as the motto. The cooperation form countries cannot be better exemplified

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Country	G	S	B	T
India	106	60	19	18
Sri Lanka	16	25	53	9
Pakistan	10	33	36	7
Bangladesh	7	17	35	5
Nepal	4	8	16	2
Bhutan	0	0	2	
Maldives	0	0	1	
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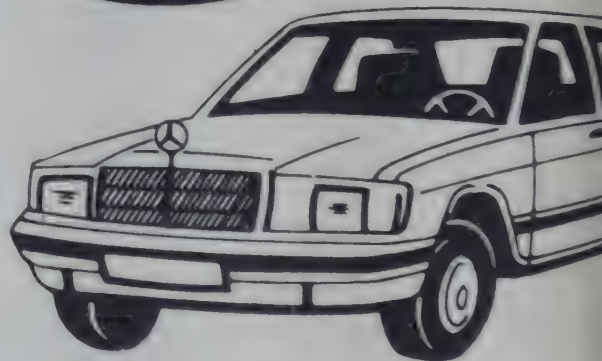
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Index

- Abbreviations 395
 Abdullah, Farooq 365
 Academy of Development Science (ADS) 103
 Acid Rain 70
 Aconcagua 121, 123, 124
 Ahikari, Manmohan 346
 Advocate General 542
 Afghanistan 194
 Africa 121, 123, 127, 451
 Air-tunnel 254
 Agriculture 153
 AIDS 171
 Air Force 580
 Air traffic 261
 Air transport 596
 Ash Ganga 110
 Ashvani 604
 Ashers, Thomas 118
 Asoka 123, 127
 Asania 195
 Astrin, Edwin 116
 Alexandria 120
 Asgeria 195
 Asmagest 120
 Asoka 117
 Aphantauri 110
 Asone 122
 As 123
 Asyn, Yagha 122
 Asminium 126
 Asasia 122
 Asazon 126, 127
 Asendment, Pressler 365, 366
 Asendments 544
 Asmerica 119, 12, 125, 127
 Asmerican English 89
 Asmerican Samoa 289
 Asmonkar, Kishori 489
 Asu Dar'ya 127
 Asur 127
 Asanathamurthy U.R 374
 Asand, Viswanathan 730
 Asand, Mulkraj 485
 Asic 355
 Asidaman 126
 Asidaman Nicobar 672, 673, 674
 Asides 123
 Asidhra Pradesh 102, 613, 615
 Asidorra 195
 Asigara 127
 Asigel 127
 Asigola 196
 Asiguilla 286
 Asimals, the world of 134, 135
 Aslanod 101
 Asnapurna 123
 Asne Remesh 102
 Asares 110
 Asarctica 118, 121, 122, 124, 126
 AsNylon Committee 101
 Antigua & Barbuda 196
 Apollo 116, 118, 128
 Appalachian 123
 Aquaculture 102
 Arabia 451
 Arabian 124
 Arabic 120
 Arafat, Yasser 350
 Aravalli 123, 452
 Archery 743
 Arecibo 109
 Argentina 123, 196
 Ariane 119
 Arin, Dr. Michael 350
 Arjuna Award, Handicapped 743
 Armenia 197
 Armstrong, Neil 116
 Army 578
 Arctic Ocean 125, 126
 Article 324-365
 Arts & Entertainment 384
 Arts & Music 369, 376
 Arunachal Pradesh 615-618
 ASEAN 345, 346
 Ashe, Arthur 312
 Asia 121, 122, 127, 451
 Asiad 738
 Asian Games Hiroshima 755-767
 Assam 468, 618, 620
 Assassination, Rajiv Gandhi 524
 Assassinations 79
 Asthenosphere 121, 122
 Astronomer 161
 Astronomy 111
 Atacama 124
 Athletics 743
 Atlantic 122, 123, 125, 126
 Atlantis 117, 118
 Atmosphere 121, 127
 Attorney General 542
 Aung San Suu Kyi 312, 316
 Auroville 100
 Australia 109, 119, 121, 122, 124, 127, 197
 Austria 198
 Awards and Honours 72, 74, 369, 379
 Ayodhya 526
 Azad, Surinder Singh 387
 Azerbaijan 198
 Azores Islands 267
B
 Badminton 745
 Baffin Island 125
 Bahamas, The 198
 Baharain 199
 Baikanur 117, 118
 Baltic Sea 126
 Bangladesh 199
 Bangalore 100
 Bank, Nationalised 567
 Banking 566-570
 Barbados 201
 Basket Ball 747
 Bay, Zoltan 109
 Brazil 316
 Becqueral, Henri 108
 Belarus 201
 Belgium 127, 202
 Belize 202
 Bellary 100
 Bengali 469
 Benin 202
 Bermuda 286
 Bharat Ratna 371
 Bhattarai, Krishna Prasad 346
 Bhutan 203
 Bhutia, Bhaichung 749
 Bhutto, Benazir 306
 Bhuvad, Anand 101
 Bihar 620-623
 Billiards 747
 Biodiversity 98, 100, 131
 Biosphere 121, 129, 131
 Biotechnology 153-156
 Birendra Bikram Shah 347
 Black Hole 110
 Black Mountain 123
 Black Sea 126
 Blueford, Guion, S 118
 Bodo 620
 Bolivia 123, 204
 Bombay 644
 Bondi, Hermann 106
 Books, Well known 389
 Borneo 125
 Bose-Einstein Condensate 44
 Bosnia-Herzegovina 204
 Botswana 124, 204
 Bouchard, Lucien 354
 Boxing 747
 Brahmaputra 127
 Brazil 119, 128, 204
 Bristol 99
 Britain's Dependent Territories 286
 Bromine 125
 Brown, Hank 365
 Brunei 205
 Bubun 483
 Bulgaria 205
 Buran 118
 Burkina Faso 206
 Burns, George 377
 Burundi 206
 Business 561
C
 Cairo Conference 320
 Cambodia 206
 Cameroon 206
 Canada 109, 117, 127, 207, 354
 Cancer 57

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 apella 110
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 arbohydrates 142
 arbon 130
 ardamom 601
 aribbean Sea 125
 arroll, Justin Tyler 325
 aspian Sea 121
 astro, Fidel 354
 atskill (Mt) 123
 auvery 102
 BT 353
 elebes 125
 entral African Republic 208
 ENTO 366
 entral Asia 118
 entral Rice Research Institute 103
 erro 123
 EC Alternative 68,70
 had 208
 hallenger 118
 handigarh 674
 andra, Vikram 485
 andrasekhar, Subramaniam 371
 aurasia, Pandit Hariprasad 489
 emistry 369
 erness 747
 ef Election Commissioners 687
 ef Justices 687
 efs of Army Staff 687
 efs of Air Staff 689
 efs of Naval Staff 689
 ildren per woman 321
 ile 123, 208
 imborazo 123
 ina 110, 119, 122, 123, 128, 208,
 338, 340, 530
 lorine 126
 omo Lhari 123
 retian, Jean 355
 ristmas Island 125
 ristopher, Warren .M. 345
 un Doo Hwan 347
 urchill 127
 iller, Tansu 313
 nema 607, 608-610
 ivilizations, Great 293
 erk, James 108
 ub, Billionaires 385
 nstitution 539
 ca Cola 345
 ffee 598
 ld War 117, 340
 ollective Intellectual Rights
 Movement 100
 olorado 127
 olumbia 118, 127, 209
 olumbia 209
 ommonwealth of the N. Mariana
 Islands 289
 mmunism (Mt) 123
 mputer 65, 174-181
 mptroller and Auditor General
 542
 ngo 127, 209
 nsumer 573-575
 ntinental Drift 122

Copernicus 106, 120
 Coral Island 125
 Corruption, Degrees of 212
 Cosmology 111
 Cosmonauts 119
 Cosmos 106
 Costa Rica 210
 Cote D' Ivoire 210
 Cotopaxi 123
 Credit cards 569
 Cricket 717, 723, 747
 Cricket World cup 96, 719
 Croatia 210
 Cryogenic 117, 158
 Cuba 125, 210, 354
 Current Affairs 338
 Cyprus 211
 Czech Republic 211

Dadra and Nagar Haveli 675
 Daman and Diu 676
 Dance 490
 Danube 127
 Darling 127
 De Culler, Javier Perez 305
 Dead Sea 121
 Death Valley 121
 Defence 577-581,
 Defence Spending by Asian Coun-
 tries 271
 Delhi 521, 676, 678
 Delta Cephei 110
 Deng Xiaoping 338
 Denmark 211
 Desai, Morarji 378
 Deserts 124
 Dhabol 101, 102
 Diet 144
 Digital data 181
 Djibouti 213
 Dioxin 65, 67
 Discovery 119, 315
 Dnieper 127
 Dogri 470
 Dominica 213
 Dominican Republic 213
 Don 127
 Doordarshan 604
 Dupont 99, 100, 101, 103
 Dutch 258
 Dying Forests 264

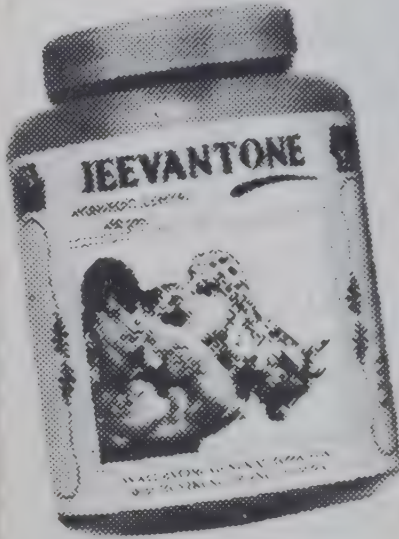
East Europe, Change in 306
 Eastern Ghats 452
 Ebola Virus 43
 Ecology 641
 Economic Glossary 91-95
 Economic Scene 548
 Economics 371
 Economy, World 318, 319
 Ecuador 213
 Education 585-588,
 EFTA 315
 Egypt 214, 351
 Eighties, turbulent 516
 El Nino 71
 El Salvador 214
 Election Commission 542

Elements 151-153
 Employment 555
 Encyclopaedia on music 487
 Energy 129
 Engine, Cryogenic 583
 Engineering, Genetic 139
 Enron 362-363
 Environment 589-590,
 Equatorial Guinea 214
 Equity 18
 Eritrea 214
 Ershad, H M 308
 Escobar, Pablo 314
 Esperanto 323
 ESRO 334
 Estonia 215
 Ethiopia 215
 EU 315
 EURATOM 334
 European Coal and Steel Commu-
 nity (ECSC) 333
 European Council 333
 European Economic Area 334
 European Economic Community
 (EEC) 333
 European Free Trade Area 333
 European Free Trade Association
 (EFTA) 333
 European Parliament 334
 Exports 552

Fatel Razack 282
 Father of the Nation 511
 Female wages 242
 Fibre, optical 183-184
 Fifth Dragon 280
 Fiji 216
 Films 369, 376
 Finland 216
 Five Year Plans 558-559
 Food 155
 Food and Nutrition 142-146
 Football 749
 Football, World Cup 751
 Foreign Investment 22
 Foreign Trade 553
 France 217, 353
 Freedom and after 514
 French Community 334

G-7 311
 Gabon 217
 Gagarin, Yuri 116-119
 Galaxy 106-107-109-111
 Galileo 108-120
 Gama, Vasco da 297
 Gambia, The 218
 Gamma ray 108-109
 Gandhi, Mohandas Karam Chand
 511
 Gandhi, Indira 103
 Ganga 127
 Gates, Bill 179
 GATT 99, 316
 Gemini 116
 General Electric 99-101
 Genes 137
 Genetic Resources 103

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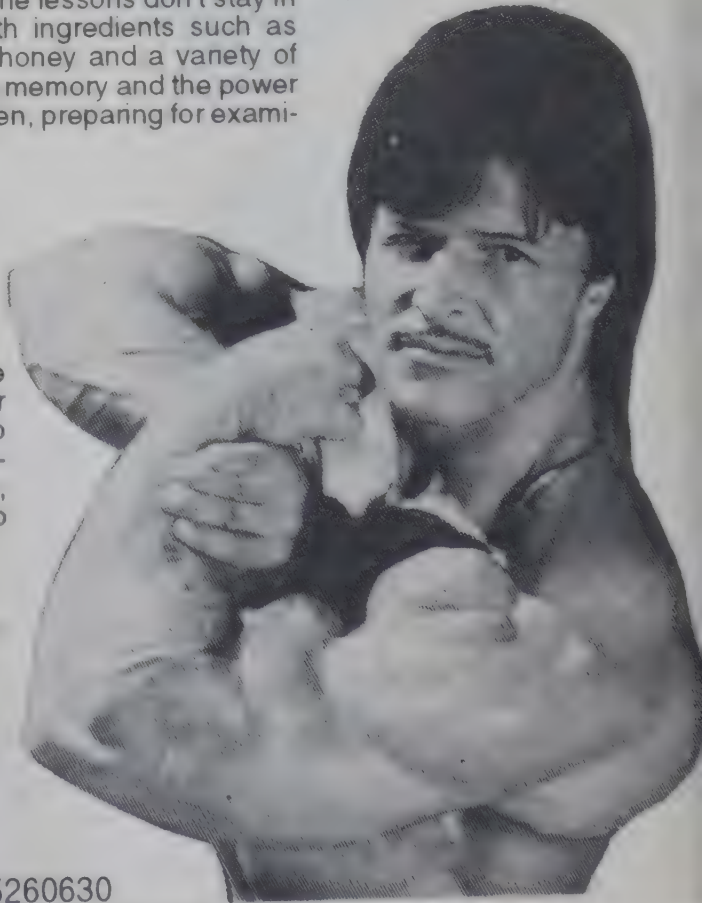
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 Germany 218
 Germany, Reunification of 307
 Ghali, Dr. Boutros 309, 310
 Ghana 219
 Gill, M. S. 364
 Glasnost 305
 Globalisation 98
 Glossary, Science 188-192
 Goa 100, 101, 103, 455, 623, 625
 Gobi 124
 Godvin (mt) 123
 Gold, Thomas 106
 Gorbachev 304, 305, 308
 Government 685
 Govindamma 102
 Grama Swaraj 102, 103
 Great Britain 125
 Greeks 110, 112, 219
 Greenland 125
 Greenwich Mean Time 163
 Grenada 220
 GSLV 583
 Guam 289
 Guaria 128
 Guatemala 220
 Guinea 220
 Guinea Bissau 221
 Gujarat 470, 625, 627
 Guyana 127, 128, 221

Haiti 221
 Hand ball 749
 Haryana 627-630
 Hassanah, Noor 283
 Heads of Important Offices 87-90
 Heaney, Seamus 369, 370
 Hekmatyar, Gulbuddin 313
 High temperature superconductivity 157
 Himachal Pradesh 630-632
 Himalayas 452
 History, Outline of 294
 Hockey 751
 Honduras 221
 Honecker, Erich 311
 Hong Kong 287, 338
 Housing 603, 604
 Hungary 222
 Husain, M.F. 494

IATA 334
 Iceland 222
 IFAD 336
 IMF 548
 Important Days 82, 83
 India 222, 363, 451-480
 Indian Art 494
 Indian Investment Abroad 34
 Indian Literature 467
 Indian Music and Dance 486
 Indian National Congress 504
 Indian Painting, Sculpture 493
 Indian Theatre 498
 Indian Writers in English 485
 Indo-China relations 342
 Indonesia 222
 Industrial Production 555

Industry 155
 INSAT 2C 361-362
 Insignia 453
 Instruments 488
 Instruments, Scientific 191
 International units 165-169
 Internet 59, 494
 INTERPOL 334
 Inventions 146-153
 Investment in India 11-34
 IOC 314
 Ionesco 315
 Iran 223
 Iraq 223
 Ireland 223
 Isle of Man 286
 Israel 223
 ISRO 581
 Italy 241

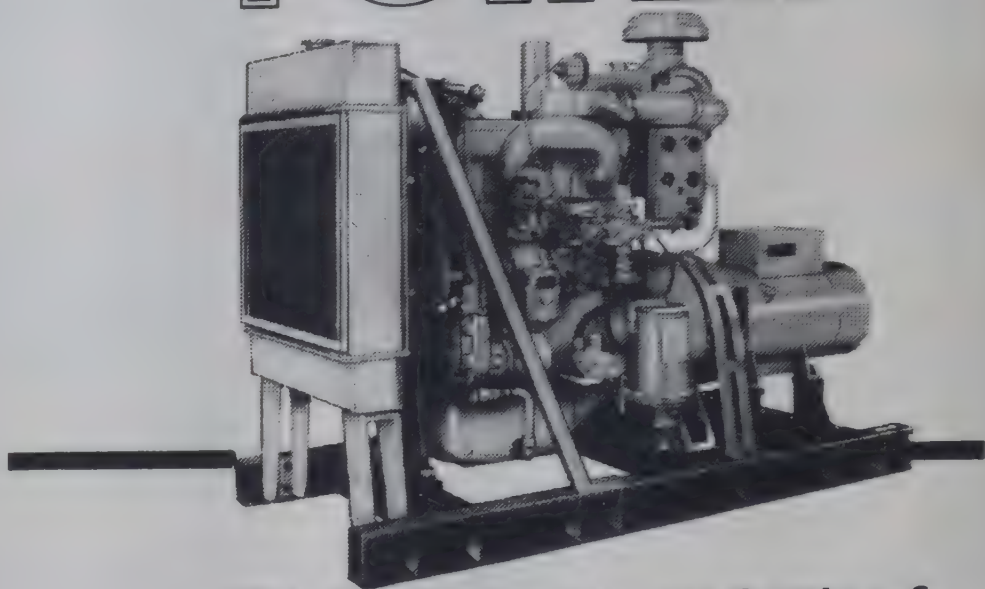
JAAC 367
 Jackson, Michael 315
 Jaffna 359
 Jain, Abhishek 388
 Jaipur, New 656
 Jamaica 241
 Jammu & Kashmir 364-365, 632, 633
 Jansky, Karl 108
 Japan 117, 119, 241
 Java 125
 Jharkhand 367
 Jigzaw, Genetic 141
 Jodrell Bank 109
 Jordan 242
 Jugabandi 489
 Jupiter 104, 112

Kaliningrad 117
 Kama 127
 Kanataka Rajya Raitha Sangha 100
 Kanchenjunga 123
 Kannada 473
 Kanyakumari 451
 Karhan 101
 Karmet 123
 Karnataka 100, 634-636
 Kasciusko 121
 Kashmiri 474
 Kasparov 731
 Katawade 101
 Kathakali 492
 Kazakhstan 117, 127, 243
 Kenya 243
 Kepler, Johannes 120
 Kerala 636-639
 Khan, Ghulam Ishaq 307
 Khon 128
 Khorana, Hargobind 371
 Kiet, Vo Van 346
 Kila Raipur 713
 Kilimanjaro 121
 Kim Il Sung 311
 Kim Jong Il 311
 King George VI 127
 Kiribati 244
 Kiss, Immortal 384
 Kissinger, Henry 366

Kizilkum 124
 Kizim, Leonid 119
 Kohl, Helmut 317
 Koirala, G P 316
 Kolyma 127
 Kondakova, Yelena 119
 Konkani 474
 Konkani 101, 103
 Koppernigk, Nicolaus 120
 Korea (North) 244
 Korea (South) 244, 347, 738
 Kosciusko 121
 Koss, Johann Olav 747
 Kourou 119
 Krishna, Santhana Dr 102
 Krishnamurthy, G. V. G 364
 Kuchipudi 491
 Kukenaaam 127
 Kumar, Dilip 371
 Kumaratunga, Chandrika 317, 361
 Kurru 102
 Kuwait 244
 Kwajelin 125
 Kwasniewski, Aleksander 351
 Kyrgyzstan 245

Labour 602, 603
 Labrador 128
 Lake Assai 121
 Lake Eyre 121
 Lake Traverse 109
 Lakshadweep 678, 681
 Lamont Doherty 122
 Lana 369
 Landmarks of History 500
 Languages, Major 324
 Languages, World 322, 325
 Laos 245
 Larwood, Harold 725
 Laser, Sound 187
 Lasers 184-187
 Latvia 245
 Laurasia 122
 League of Nations 299
 Least developed countries 2567
 Lebanon 245
 Lemaitre, Abbe Georges 106
 Lena 127
 Leohov, Aleksey .A 119
 Lesotho 246
 Li Peng 312
 Liberalisation 11, 99, 548
 Liberia 246
 Library, Largest Children's 391
 Libya 246
 LIC 570
 Liechtenstein 247
 Life Expectancy 243
 Lifeline Express 50
 Light year 107
 Lippershay, Hans 108
 Literacy 457
 Literature 369, 371, 374
 Lithosphere 121
 Lithuania 247
 Liullailaco 123
 Lok Sabha 703
 Lonokhodi 119

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TE 359, 361
 na 155
 nar Module 116
 nokhod 115
 xembourg 247
 zon 126
 bia 124
 [acedonia 247
 ickenzie 127
 ao 267
 culiff, Christa 118
 agascar 248
 deria 127
 dhva Pradesh 639-642
 gdelenia 127
 gnesium 121, 126
 arashtra 101, 103, 642-645
 ne 683
 thili 475
 or crops 554
 agasy 125
 awi 248
 ayalam 475
 aysia 249
 dives 249
 notra, Ashok 729
 251
 a 252
 's Origins 266
 , Descent of 135-136
 dela, Nelson 127, 316, 355, 356
 upur 476, 645, 646
 tle 120
 s 225
 athi 477
 athon 751
 gret, Ann 377
 bondo 128
 ner 116
 ket Economy 551, 552
 104, 112, 116
 hal Islands 125, 252
 er 185
 Communication 604
 acre, Jallianwalla Bagh 502
 itania 252
 titus 252
 vellian 108
 ley (mt) 123
 ley 121
 a 369, 378, 605, 606
 cine & Physiology 371
 cine and Health 155
 cine, Milestones in 149
 erianean 122, 126
 alaya 647, 648
 ng 127
 esia 126
 n, Anjolie Ela 494
 dario 123
 99
 ry 104, 112, 116
 ause 128
 107
 orphic rocks 122
 olitan, largest 200
 127, 252

Micronesia 126, 253
 Migrants 320
 Milestones, Space Research 584
 Military modernisation 341
 Milky way 106, 107, 109, 110, 112, 113
 Mindanao 125, 126
 Minerals 142
 Mines, Angola 196
 Ministers, Council of 691, 701
 Minya Konka 123
 Mir Space Station 116, 117, 119
 Missile 577, 578
 Mississippi-Missouri 127
 Mitra, Sombhu 499
 Mitterand, Francois 305
 Mizoram 648-650
 Moldova 253
 Monaco 253
 Mongolia 124, 253
 Monsanto 99
 Montserrat 287
 Moon 108, 114-116, 118, 128
 Morocco 254
 Mozambique 255
 MPEDA 102
 MSEB 101
 Mubarak, Hosni 335, 351
 Murayama, Tomichi 316
 Murray-Darling 127
 Mutual funds 18
 Muztagh Ata 123
 Myanmar 255

N-Level Check 52
 Nagaland 650, 651
 Naik Nilesh 101
 Najibulla, Dr 310
 NAM 336
 Names, old and new 262
 Namibia 256
 Nanda Devi 123
 Nanometre 108
 Napoleon 217
 Narayanan K.R 379, 485
 Naruhito, Prince 313
 NASA 117, 119
 Nasreen, Taslima 317
 National Anthem 453-454
 National Bureau of Plant 103
 National Calendar 454
 National Days 80, 82
 National Flag 454
 National Honours 369
 National League Democracy 349
 National Song 454
 Nations of the World 194
 NATO 314, 315, 334
 Nauru 256
 Navy 579
 Nawaz, Sharif 313
 NCC 578
 NEERI 102
 Nehru, Jawaharlal 515
 Nellore 102
 Nepal 123, 257, 345, 478
 Neptune 105, 112
 Netherlands 258

New Delhi 103
 New Economic Policy 98, 99
 New Guinea 125
 New Zealand 258
 News Agencies 84, 85
 Newspaper 606
 Newton 108, 120
 NGC 111
 Niagra 128
 Nicaragua 259
 Niger 127, 259
 Nigeria 259, 356
 Nile 126, 127
 Nitrogen 128, 130
 Nobel Prizes 369
 Noise Scale 161
 North Caucasus 109
 Northern Ireland 286
 Norway 260
 Novae 110
 NPT 353
 Nubian 124
 Numerals 164-165
 Nylon 100, 101

OAPEC 334
 OAS 334
 OAU 334
 Ob-Irtysh 127
 Obituary 1995 74, 76, 78
 OECD 276, 335
 Ohio 127
 OIC 335
 Ojosdel Salado 123
 Ojukwu, Gen. 302
 Olekraj, Josef 351
 Olenek 127
 Olympics 706, 715
 Olympics, Rural 713
 Oman 260
 OPEC 335
 Opposition Gains Power 520
 Orbiter 118
 Orchid 617
 Orinoco 127
 Orissa 102, 478, 651-654
 Outer Space 107
 Overseas Territories 267
 Owens, Jesse 747
 Oxygen 104, 128, 130
 Ozone 128, 357

Pacific Ocean 122, 123, 125, 126
 Pacific territories 289
 Pact, Warsaw 309
 Pacts and Conferences 508
 Pakistan 123, 261
 Palau 262
 Palestine 263, 312
 Palpa 118
 Panama 263
 Panchayat Raj 103, 541
 Pangea 122, 123
 Papandreou, Andreas 314
 Papua New Guinea 263
 Paraguay 127, 264
 Parana 127
 Parker, Eugie Norman 113

Parks 109
 Party position 703
 Patekar, Nana 376
 Patkai 452
 Patos-Maribondo 128
 Paulo Afonso 128
 Peace and Humanism 369, 378
 Pechora 127
 Pennines 123
 People 454
 Peres, Shimon 351
 Persian Gulf 126
 Peru 123, 264
 Philippines 264
 Photons 108
 Physics 369
 Pilcomayo 127
 Planning Commission 689
 Plantations 597-602
 Plants, the world of 132-134
 Plate tectonics 122
 Pleiades 108
 PLO 314
 Pluto 105, 112
 Pobeda Peak 123
 Poland 265, 351
 Poliomyelitis 37
 Polyakov, Valery 119
 Polymers 159
 Polynesia 126
 Pondichery 681, 683
 Population 456
 Population, Religious 326
 Population, World 320
 Ports 594
 Portugal 265
 Post Second World War 300
 Postal Service 604, 605
 Potassium 126
 Poverty Line 550
 Powell, C.F. 110
 Powers, Gary 366
 Prabhakaran, Velupillai 359
 Premadasa 306, 313
 Presidents 685
 Presidents, Congress 506
 Pressler, Larry 365
 Pretoria 355
 Prime Ministers 685
 Principal Languages 464
 Production of foodgrains 553
 Programme, KPD 321
 Project, Human Genome 138
 Proteins 142
 PSLV 583
 Ptolemy, Claudis 106, 120
 Public Enterprises 14
 Puerto Rico 288
 Punjab 479, 654-656

Qatar 267
 Qadhafi 317
 Quebec 354
 Queen Elizabeth 316
 Quit India 100

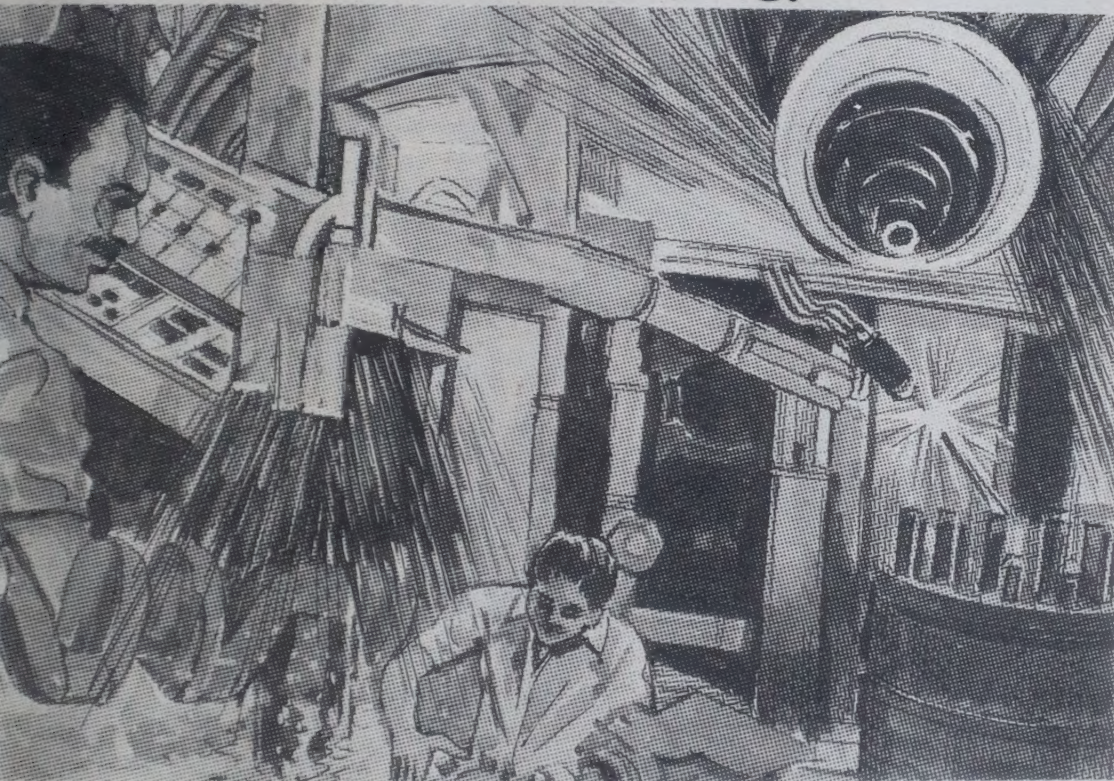
Rabin, Yitzhak 310, 316, 350
 Radar 109

Radiation 143
 Radioactivity 108
 Radio Astronomy 108
 Rafsanjani, Ali Akbar 313
 Railway, Elevated 662
 Railways 593
 Raipur 103
 Rajasthan 480, 656-659
 Rajya Sabha 703
 Raman C.V 371
 Rao, P.V. Narasimha 343
 Ratwatte, Anurudh 359
 RBI 568, 569
 Reber, Grote 108
 Records, Indian 386
 Records, World 382
 Records, World Athletics 735
 Records, Asian Continental 741
 Red Cross 336
 Red Giants 109, 110
 Red Sea 122
 Religion, World 326
 Religious Communities 461
 Repression and Reforms 507
 Reproductive Health care 320
 Research Space 581-585,
 Ribbon 127
 Ride, Sally 118, 119
 Rio Granda 127
 Rio Nergo 127
 Ritter, Johann 107
 Rivers 127
 Roads 596
 Rockies 123
 Roman gods 112
 Romania 267
 Roentgen, Wilhem 108
 ROSAT 111
 Rushdie, Salman 306
 Roy, Debasree 376
 Rub'ai khali 124
 Rubber 598
 Rural Advancement Foundation
 International 99
 Russia 109, 118, 119, 127, 268
 Rutherford 108
 Rwanda 268, 316

SAARC 305, 313, 336, 344
 SADC 319
 Sahara 124
 Sahyadri 452
 Sajama Volcano 123
 Salt 126
 Salwen 127
 Salyut 116
 San Andreas 123
 San Francisco 127
 San Marino 269
 Sandage, Alan 106
 Sanskrit 480
 Sao Tome & Principe 269
 SAPTA 313, 349
 Saskatchewan 127
 Satellite 582
 Satpura 452
 Saturn 105, 112
 Saudi Arabia 269

Savitskaya, Svetina 119
 Science 369, 372
 Science Scan 37 71
 Scorpio 110
 Scotland 286
 Scouts and Guides 336
 Sculpture 496
 Sea of Japan 126
 Sea of Okhotsk 126
 SEATO 366
 Sebastian, K.L 373
 Security Council, UN 363
 Sedimentary rocks 122
 Seed Satyagraha 100
 Senegal 270
 Seshan, T.N 364, 381
 SETI 107
 Seychelles 270
 Shakalin 125
 Sharif, Nawas 308
 Sharma, Rakesh 119
 Shipping 595
 Sierra Leone 270
 Sikkim 659-660
 Silicon 126
 Simson, O.J 745
 Sindhi 481
 Singapore 271
 Singhe, Wickrema 313
 Sinking Maldives 250
 Skylab 116, 118, 119
 SLORC 349, 350
 Slovakia 271
 Slovenia 271
 Sobriquets 83, 84
 Sodium 126
 Solar Eclipse 38
 Solar System 112
 Solar Wind 114
 Solomon Islands 272
 Solovyov, Vladimir 119
 Somalia 272, 315, 580
 Sound, the world of 161
 South Africa 125-127, 2
 South America 125-127
 South China Sea 126
 South Island 125
 Soviet 117, 119
 Soviet Union, break up
 Soyinka, Wole 379
 Space 116
 Spain 254, 273
 Speaker of the Lok Sabha
 Spices 600
 Sports 737-767
 Sports Panorama 733
 Sputnik 116, 119
 Sri Lanka 125, 273, 359
 St Lawrence 126-127
 St. Helena 125
 St. Kitts-Nevis 275
 St. Lucia 275
 St. Vincent & The Gren
 Stars 110
 START-II 312
 State Emblem 453
 States and Territories
 States of the Union 28

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States, The Biggest 194
 States, The Smallest 194
 Status, Women 460
 Stock Exchange 565
 Stone Age 455
 Stone tools 266
 Stratosphere 128
 Sudan 276
 Sugatha Kumari 381
 Sumatra 125
 Sun 40, 104, 106, 110, 112, 113
 Sungari 127
 Sunspot 114
 Super conductivity 156-157
 Super Novae 110
 Supreme Court 102, 542
 Suriname 276
 Suvarna Agna 102
 Swaziland 277
 Sweden 276, 277
 Switzerland 277
 Symbols of Heritage 462
 Syr-Darya 127
 Syria 278
 Syrian 124

Table of Precedence (India) 86, 87
 Table Tennis 751
 Tagore, Rabindranath 371
 Taiwan 279
 Tajikistan 123, 279
 Takela Makan 124
 Tamil 482
 Tamil Nadu 102, 103, 660-664
 Tanzania 279
 Tarango, Jeff 753
 Tasmania 125
 Tea 597
 Telecommunication 182, 591-597
 Telescope 108, 109, 161
 Telugu 483
 Temperature Scales 158, 159
 Tennis 753
 Teresa, Mother 371
 Terms in British and American English 90
 Tereshkova, Valentina 116, 119
 Tethys Ocean 122
 Texas 101
 Thagard, Norman 117
 Thailand 280
 Thar 124
 The Arab League 335
 The Channel Island 286
 The Commonwealth 333
 The Comoros 209
 The Eternal City 241
 The Health of the Nations 173
 The Iliad 220
 The National movement 503
 The Partition 510
 The world of medicine 170-174
 Third World Network 100
 Thuot, Pierre 118
 Tibet 122
 Tigris 127
 Time Keeping 48
 Time Standards 163-164

Tirich Mir 123
 TNC 99, 100
 Tobacco 601
 Tocantins 127
 Togo 281
 Tonga 281
 Top brands 563
 Tourism 571-573
 Trade Act 99
 Train TGV 303
 Trinidad & Tobago 281
 Trinidad 282
 TRIPS 99, 100
 Tripura 664, 665
 Troposphere 28
 Tugela 127
 Tunisia 281
 Tupungato 123
 Turkey 284
 Turkistan 124
 Turkmenistan 127, 284
 Tuvalu 284

Udhagamandalam 109
 UK 109
 Ukraine, The - 285
 Ulysses 118
 UN 310-311, 328, 332
 UN Golden Jubilee 328
 Union Territories 672
 UNITA 314
 United Arab Emirates 285
 United Kingdom 285
 United States of America 287
 Universe 104, 106, 107, 116
 University of Bombay 103
 UNOMIL 314
 Ural 127
 Uranium 108
 Uranus 105, 112
 Urdu 484
 Uruguay 127, 289
 US 99, 100, 101, 116, 117, 119, 354
 USA 109, 118, 126, 127
 USSR 115
 Uttar Pradesh 665-668
 Uzbekistan 289

Valdes Penin 121
 Van Allen 116
 Vanuatu 289
 Vatican City 289, 290
 Velude 101
 Venezuela 127, 290
 Venter, J. Craig 141
 Venus 104, 112, 116
 Very rich households 564
 Vesuvius 123
 VIBGYOR 107
 Vice-Presidents 685
 Victoria Islands 125
 Vietnam 290, 345, 346
 Vijeratne, Ranjan 308
 Viking 123
 Vilcanota 123
 Vimson Massif 121
 Vindhya range 452
 Virgin Islands 289

Vitamines 142
 Volcanno 123, 124
 Volga 127
 Volleyball 755
 Voskhod 119
 Voyager 116

Wales 286
 Walesa, Lech 351
 Walking Billboards 727
 Water 131
 Waterways 595
 WCC 336
 Wedding anniversaries 84
 Wegener, Alfred 122
 Weights and Measures 168
 Welcome, Faith 327
 Wellomombi 127
 West Bengal 668-671
 Westar 18
 Western Samoa 291
 Whales 63
 Wheaton 108
 Who's Who 401-432
 Wimbledon 753
 Windows '95 79
 WIPO 336
 Wiwa, Ken Saro 356
 Woo, Roh Tae 347
 Wordsworth 393
 World Bank 98, 99
 World Cup Football 1994 3
 World, Natural 383
 World Organisations 332
 World, Scientific 383
 World Trade Organisation 3
 World, Human 382
 WTO 336
 WTO 98, 99

X-Ray 108, 109, 13
 X-ray 52
 Xanthosis 325

Yakuts 110
 Yeltsin, Boris 309, 312
 Yemen 291
 Yenizey 127
 Young, Thomas 107
 Yugoslavia 291
 Yukon 127
 Yunus, Muhammad 379

Zaire 292
 Zambezi 127
 Zambia 292
 Zelechukskaya 109
 Zia, Begum Khalida 308
 Zimbabwe 292
 1994 at a glance 535
 1994 in a nutshell 315

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